The Petroleum Situation

Vol. 3 — No. 11
NOVEMBER, 1979

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Total deliveries of petroleum products into domestic consumption channels amounted to 17.66 million barrels a day in October, 4.2 percent less than a year earlier, and barely ahead of the level in October 1977. In fact, several of the major products failed to equal the level of two years ago, and the demand for motor gasoline was even less than in October 1976.

For more than two years, now, we have been hearing from Washington about the need to reduce oil consumption in order to reduce our dependence on imports. In recent months, we have seen evidence that the use of oil is indeed declining, although there has been little change in the import dependence, since domestic production is also declining. The single most important factor in the decline in oil use is almost surely the 74 percent increase in wholesale product prices over the past twelve months.

In its first energy message to the American people, the Carter administration stressed the importance of bringing domestic oil prices to the world level to stimulate conservation. Washington should be happy to see that its price decontrol program coupled with the increase in world prices is having the desired effect.

SUPPLY

Domestic crude oil production in October rebounded from the abnormally low September level as output in Louisiana recovered from the effects of two hurricanes. The more mature oil areas are still in a phase of declining production, however. Over the past twelve months, crude oil production in both Texas and Louisiana has declined by about 180 thousand barrels a day in each state. This has been partially offset by an increase in shipments of Alaska North Slope crude oil amounting to about 170 thousand barrels a day.

October crude oil production of 8.5 million barrels a day was supplemented by 6.5 million barrels daily of crude oil imports. Thus, almost 15 million barrels a day of crude oil was available to refiners, after allowing for exports. Since crude oil exports involve hard-to-obtain licenses, the quantities shown represent swaps between the U.S. and Canada, and movements to U.S. territories in the Caribbean and Pacific.

Crude oil throughput at refineries dropped 200 thousand barrels a day from the September level, and amounted to 14.3 million barrels a day, or 81.4 percent of capacity. Production at refineries in October was augmented by 1.6 million barrels a day of product imports and by a similar quantity of domestic natural gas liquids. Total new supply of petroleum products in October was 1.6 percent less than in September and 3.7 percent less than in October 1978.

STOCKS

The new supply of petroleum products in October was more than enough to satisfy required deliveries and the quantity of products in storage increased by 10 million barrels during the month. Stocks of gasoline and minor products declined, but the drop was more than offset by an increase in distillate and residual fuel oil inventories. At the end of the month, total stocks of refined products amounted to 898 million barrels, only six million barrels below the year-earlier level.

Crude oil stocks in October rose by 20 million barrels and at the end of the month totaled 341 million barrels, the highest level reached thus far in 1979. In view of the uncertainties surrounding the supply of foreign crude oil, prudent refiners will undoubtedly maintain their crude oil stocks at as high a level as possible.

PRICES

The latest data from the Department of Energy Entitlement Office show that in September the refiner acquisition cost of crude oil topped $20 a barrel for the first time. The increase above the August level amounted to 43¢ a barrel, or 1¢ a gallon.

Readers who follow these data closely will note that in September the price of two categories of crude oil declined from the August level. Lower tier crude was 4¢ a barrel lower and Alaskan crude dropped by $1.85 a barrel. Some explanation is called for since under current regulations all crude oil prices are increasing.

In the case of lower tier oil, it should be remembered that the prices quoted in Table 1 are averages. Actual prices of individual crudes may vary by $2 a barrel above and below the average. The average price will change, therefore, in response to changes in the quantity of each crude oil sold as well as to changes in the price. Alaskan crude is sold both on the West Coast and the Gulf Coast. The additional transportation cost of moving oil to the Gulf Coast is about $3 a barrel. The drop in the refiner acquisition cost of Alaskan crude in September indicates that larger quantities were delivered to the West Coast than to the Gulf Coast.

TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	SEPTEMBER 1979		SEPTEMBER 1978	
Lower Tier	6.54	13.1	5.99	17.8
Upper Tier	14.01	19.2	12.79	17.8
Alaska	19.53	8.4	12.83	7.1
Stripper	26.80	10.7	14.55	7.2
NPR	21.37	0.8	13.40	0.6
Newly Discovered	30.56	1.0	–	–
Heavy Oil	17.08	1.4	–	–
Tertiary	18.83	0.1	–	–
Domestic Composite	16.08	54.7	10.65	50.5
Imported	25.06	45.3	14.53	49.5
Composite	**20.14**	**100.0**	**12.57**	**100.0**
"Entitlements" Penalty	.14	–	.04	–
Refiner Acquisition Cost	20.28	–	12.61	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

The increase in the average wholesale price of petroleum products in September was 4.2¢ a gallon, or $1.76 a barrel. This was considerably in excess of the rise of crude oil costs, with the result that the gross margin for refiners rose to $5.69 a barrel for full product refineries. In the case of fuel oil oriented refineries, the margin more than doubled from the August level, as shown in Table 3.

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1979 OCT.	1979 SEPT.	1979 AUG.	1978 OCT.
Motor Gasoline	68.0	66.8	61.7	40.4
Kerosine	69.2	67.8	63.6	37.7
Distillate Fuel	67.0	66.0	61.7	36.1
Residual Fuel	39.3	38.3	36.6	23.0

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
June 1979	4.00	0.97
July 1979	3.87	0.40
August 1979	4.34	0.65
September 1979	5.69	1.51

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	OCTOBER 1979	OCTOBER 1978	Change – % –	3 MOS. AVERAGE 1979	3 MOS. AVERAGE 1978	Change – % –	YEAR TO DATE AVERAGE 1979	YEAR TO DATE AVERAGE 1978	Change – % –
	Thous. Bbls. Daily			Thous. Bbls. Daily			Thous. Bbls. Daily		
Primary Demand									
Gasoline	6,935	7,461	– 7.0	7,079	7,582	– 6.6	7,091	7,402	– 4.2
(Unleaded)*	(2,935)	(2,610)	(12.5)	(2,920)	(2,697)	8.3	(2,798)	(2,502)	(11.8)
Jet Fuel	1,046	1,072	– 2.4	1,091	1,093	– 0.2	1,074	1,055	1.8
Kerosine	207	172	20.3	161	151	6.5	188	168	11.9
Distillate Fuel	2,857	3,068	– 6.9	2,702	2,835	– 4.7	3,221	3,325	– 3.1
Residual Fuel	2,194	2,631	– 16.6	2,323	2,762	– 15.9	2,711	3,027	– 10.4
All Other	4,417	4,020	9.9	4,351	3,914	11.2	4,075	3,714	9.7
Total Domestic Demand	17,656	18,424	– 4.2	17,708	18,338	– 3.4	18,360	18,690	– 1.8
Exports	445	469	– 5.1	454	450	0.9	474	347	36.7
Total Demand	18,101	18,893	– 4.2	18,162	18,787	– 3.3	18,834	19,037	– 1.1
New Supply									
Domestic	10,922	11,267	– 3.1	10,761	11,002	– 2.2	10,718	10,847	– 1.2
Crude Oil	8,544	8,830	– 3.2	8,508	8,802	– 3.3	8,494	8,703	– 2.4
Natural Gas Liquids	1,660	1,540	7.8	1,675	1,547	8.2	1,684	1,564	7.7
Other Supply	718	897	– 20.0	579	653	– 11.4	539	580	– 7.1
Imports	8,145	8,021	1.5	8,119	8,226	– 1.3	8,172	7,940	2.9
Crude Oil	6,552	6,298	4.0	6,563	6,375	3.0	6,347	5,972	6.3
Refined Products	1,593	1,723	– 7.5	1,556	1,851	– 15.9	1,825	1,969	– 7.3
Residual Fuel	888	1,121	– 20.8	905	1,232	– 26.6	1,097	1,340	– 18.2
All Other	705	602	17.1	651	618	5.3	728	629	15.8
Total New Supply	19,067	19,288	– 1.1	18,880	19,228	– 1.8	18,890	18,788	0.5
Crude Oil Refined	14,327	15,002	– 4.5	14,586	15,085	– 3.3	14,488	14,601	– 0.8
Stock Change	966	395	–	719	440	–	55	–249	–
Stocks – End of Month in Million Barrels									
Gasoline	221	214	3.2						
Jet Fuel	35	33	5.4						
Kerosine	16	16	2.5						
Distillate Fuel	246	233	5.5						
Residual Fuel	99	83	18.6						
All Other	281	325	– 13.5						
Total Products	898	904	– 0.7						
Crude Oil	341	325	4.9						
Total – All Oils	1,239	1,228	0.9						

Totals may not add due to rounding
* Included in gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

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GOVERNMENT LAND-USE PROGRAMS

The Russians are in Afghanistan, only a few hundred miles from the politically vulnerable, oil-rich countries of the Persian Gulf. Foreign oil prices have increased, on average, by 25 percent in the past few weeks to the point where United States oil imports now cost almost a quarter of a billion dollars a day. Efforts at oil conservation, while beginning to bear fruit, are unlikely to lead to significantly lower oil imports during the eighties.

The scene would appear to be set for the adoption of policies by government to maximize the production of domestic oil. Instead, we see an almost fanatical determination to protect consumers from paying the world price for oil, a deliberate reduction in oil investment funds via the Windfall Profits Tax, and government land-use programs that place greater emphasis on creating inaccessible wilderness areas than on providing oil to power this nation's economy.

In Washington, the solutions to the problems posed by current world oil conditions include adoption of an extensive program, utilizing untested technologies which could bring significant environmental problems, to develop synthetic fuels before we have fully evaluated and effectively utilized our remaining oil and natural gas resources. The critical factor about these resources is knowledge. Firsthand knowledge is worth much more than even an expert opinion, and that knowledge can only be gained by a vigorous exploration program which tests all geologically attractive areas.

A vigorous exploration program requires an adequate incentive — the possibility of earning a return on investment commensurate with the risk — and adequate opportunity. It is adequate opportunity that is jeopardized by current land-use programs.

In the United States, the landowner is normally the owner of underground mineral rights. The government's role as landlord had little impact on the petroleum industry until about 25 years ago since there were plenty of geologically attractive areas in private hands where leases could be negotiated swiftly between the private parties involved. As the privately-owned onshore resource base became more and more depleted, however, the industry was forced to move to offshore and frontier areas, where the federal government is the principal landlord.

The total onshore land area of the United States amounts to 2.3 billion acres of which the federal government holds title to about one third. In addition to this onshore acreage, Washington has sole authority over offshore waters beyond the three mile coastal limit, an area referred to as the Outer Continental Shelf. This offshore area contains about 350 million acres up to water depths of 600 feet, currently recognized as the limit of offshore oil and gas operations.

The federal government is thus the custodian of over 1.1 billion acres, ranging from less than one percent of the total state area in Maine to 96 percent in Alaska. Onshore federal lands are concentrated in the West. In the seven states of Alaska, Nevada, Utah, Idaho, Oregon, Wyoming and California, which constitute about one-third of the U.S. land mass, over three-quarters of the land is under federal domain.

The opportunity to exploit hydrocarbon resources on public lands is a function of the policy decisions of the Department of the Interior, a department which is primarily oriented toward environmental preservation. It should come as no surprise, therefore, that in recent years, significant amounts of public acreage have been withdrawn from mineral leasing and dedicated to such uses as national parks, military reserves and fish and wildlife refuges. Congress, too, contributed to this pernicious policy when it passed the Alaskan Wildlife Refuge Bill. Did Congress realize that, in forbidding oil and gas exploration in the coastal strip that lies between Prudeau Bay and the Mackenzie delta area of Canada, they were foreclosing on the possibility of the eventual

production of an additional million barrels a day of oil and several trillion cubic feet a year of natural gas?

These actions of government, in our opinion, have withdrawn from leasing as much as 50 percent of the federal land in the onshore lower 48 states and about 80 percent of onshore federal land in Alaska. Even private land is not exempt. About 30 percent of private land in the onshore lower 48 states has been effectively withdrawn by the need to comply with mind-boggling environmental laws and regulations. All this without any explicit analysis of the energy loss associated with alternate land uses.

Based on current estimates by industry and government of the remaining recoverable resources of oil and natural gas, we judge that 18 billion barrels of oil and over 100 trillion cubic feet of natural gas will be lost to the nation as a result of present land withdrawal policies. If only half of these resources could be turned into proven reserves during the eighties, they would support production in 1990 of 2 million barrels a day of oil and 4 trillion cubic feet a year of natural gas. This is a measure of the penalty the nation is paying for current land use policies in the onshore areas.

Offshore, access to the remaining resource base is limited by federal leasing programs. The Department of the Interior current leasing program for lower 48 offshore areas runs through 1985 and contemplates 24 sales of about half a million acres each. By 1985, an additional 12 million acres, over and above those already under lease will be made available. Offshore Alaska, an area one-third larger than the rest of the U.S. Continental Shelf, ten lease sales are proposed through 1985, which will test about 2-½ percent of the total acreage. Several regions, considered by industry to be prime geologic prospects, are not included in this leasing schedule. Moreover, some of the better areas have been put at the end of the schedule instead of being investigated as early as possible.

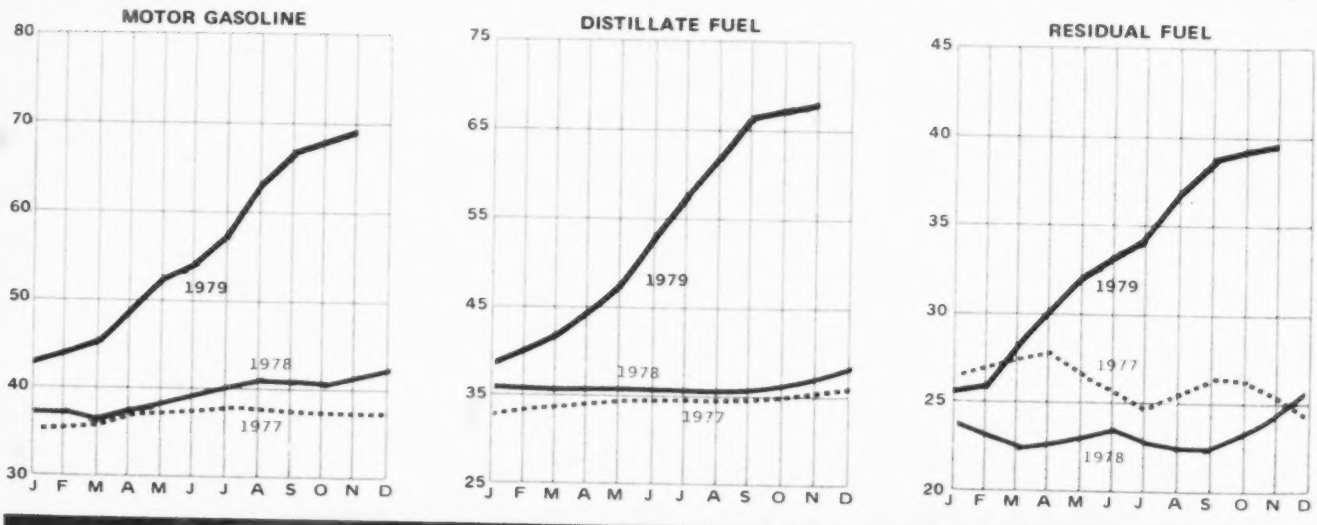
Government policy appears to rank maximizing the lease bonus payments it receives ahead of maximizing new domestic oil and gas supplies. Shell Oil has estimated that doubling the number of Alaskan offshore leases between now and 1990, and rearranging the order to make the more attractive leases available earlier, would lead to additional production by 1990 of half a million barrels a day of oil and half a trillion cubic feet a year of natural gas.

To sum up, changes in government land use and offshore leasing policies could yield an additional 2.5 million barrels a day of oil and 4.5 trillion cubic feet a year of natural gas by 1990. The gas could displace about 2 million barrels a day of oil, thus, the total saving in oil imports would amount to about 4.5 million barrels a day.

Apart from the national security aspects of reducing our reliance on insecure foreign oil, such a reduction in oil imports would improve our balance of trade by 50 billion dollars a year at today's prices, and more than twice that figure at anticipated 1990 prices. A final thought: almost all of the proceeds from the sale of these additional quantities of oil and natural gas would be returned to U.S. citizens in the form of wages, salaries and profits. A more attractive prospect than sending an equivalent amount of money (or goods and services) overseas to enrich the coffers of OPEC.

John D. Emerson

U.S. Wholesale Prices . . .
BY MONTHS
cents per gallon



UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Total demand for petroleum products in November was over a million barrels a day higher than in October, although in line with the trend in recent months it was below the November, 1978 level. For the year to date through November, deliveries of petroleum products for domestic use trailed the year earlier level by 2%.

Compared to November, 1978, deliveries of gasoline, jet fuel and heavy fuel oil all posted declines. Gasoline, in fact, showed a substantial 800 thousand barrel a day drop, although the unleaded portion continued to rise, reaching 43% of total deliveries, compared to 36% a year earlier. Distillate fuel demand in November was 2% above the year-ago rate despite the absence of colder weather. Based on degree day accumulations, temperatures in November averaged almost 9% warmer than in November, 1978, and 14% warmer than normal.

SUPPLY

Domestic crude oil production in November showed an increase of 32 thousand barrels daily from the October level. This modest rise in total output masks a more significant increase of over 100 thousand barrels a day in shipments of crude oil from the North Slope of Alaska. Production from that area has now reached almost 1.5 million barrels a day. The principal offset in November was a 73 thousand barrel a day drop in Wyoming production.

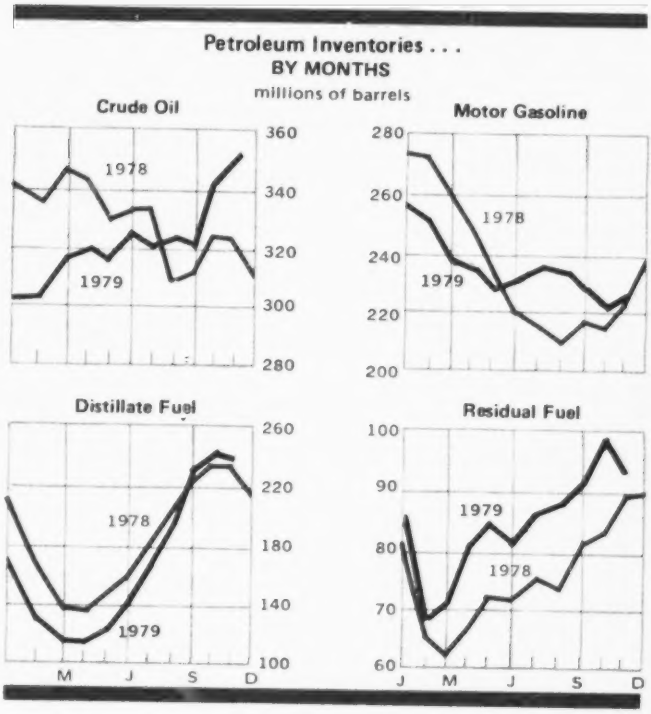
Increases in natural gas liquids production and in other supply items brought total new supply from domestic sources to 11.25 million barrels a day in November, 332 thousand barrels daily above the October level. This increase, however, was completely offset by a drop in crude oil imports.

Refinery throughput of crude oil was almost a quarter of a million barrels a day higher in November than in October. Refiners, however, are still adopting a cautious attitude towards turning their available stocks of crude oil into products. At current levels of demand, the days supply of product stocks are higher than a year ago, so this policy is not causing any shortages.

STOCKS

After rising by almost a million barrels a day in October, stocks of oils declined slightly in November. Product stocks fell by 12 million barrels, but this was largely offset by a 10 million barrel increase in crude oil stocks.

At month end, crude oil and major product stocks were above year-earlier levels. Only the minor products were lower, but they were lower by a sufficient amount to bring about a 25 million barrel decline in total product stocks from the level at the end of November, 1978.



PRICES

The meeting of OPEC oil ministers in Caracas came and went without the return to a consensus on future oil prices. Individual members raised their contract prices from time to time during the second half of 1979 to capture some of the revenues that the spot market indicated were available.

It is the spot market, primarily, that has caused the disarray among OPEC producers. Each one of them has tested this market and found that it can sell oil at 50% or more above the contract price. This is a far wider differential than is normal, and it is encouraging producers to reduce supplies of contract oil and channel more into spot sales.

TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	OCTOBER 1979		OCTOBER 1978	
Lower Tier	6.65	12.0	6.08	18.0
Upper Tier	14.09	18.9	12.84	18.3
Alaska	20.71	8.7	12.98	7.7
Stripper	28.25	10.6	14.55	7.5
NPR	21.28	0.8	13.56	0.6
Newly Discovered	32.78	1.3	—	—
Heavy Oil	18.34	1.7	—	—
Tertiary	19.25	0.1	—	—
Domestic Composite	16.98	54.1	10.78	52.8
Imported	25.05	45.9	14.63	47.2
Composite	**20.68**	**100.0**	**12.62**	**100.0**
"Entitlements" Penalty	0.12	—	0.03	—
Refiner Acquisition Cost	20.80	—	12.65	—

Sources: U.S. Department of Energy
Chase Manhattan Bank

The spot price is a true market price, and the current wide differential versus the contract price provides a measure of the tightness of the market. A tightness that results from buyers mopping up every barrel of oil they can find, not from sellers reducing the quantities available. As long as the spot market remains at its present inflated level, it is unlikely that OPEC will regain control over pricing.

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1979 NOV.	1979 OCT.	1979 SEPT.	1978 NOV.
Motor Gasoline	69.7	68.0	66.8	41.1
Kerosine	69.7	69.2	67.8	38.6
Distillate Fuel	67.3	67.0	66.0	36.8
Residual Fuel	39.7	39.3	38.3	24.0

Source: Independent Petroleum Association of America

With storage tanks full, the world over, the demand for OPEC crude oil will drop sharply at the end of the winter. Whether this will bring about a collapse of the spot market depends upon the willingness of the price hawks in OPEC to cut production fast enough. The Iranian situation is, of course, vital to this consideration. Should a further cutback in Iranian exports occur, in conjunction with planned cutbacks by other OPEC members, there would be no sustained reduction in spot prices.

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
July 1979	3.87	0.40
August 1979	4.34	0.65
September 1979	5.69	1.51
October 1979	5.65	1.45

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	NOVEMBER 1979 Thous. Bbls. Daily	NOVEMBER 1978 Thous. Bbls. Daily	NOVEMBER Change – % –	3 MOS. AVERAGE 1979 Thous. Bbls. Daily	3 MOS. AVERAGE 1978 Thous. Bbls. Daily	3 MOS. AVERAGE Change – % –	YEAR TO DATE AVERAGE 1979 Thous. Bbls. Daily	YEAR TO DATE AVERAGE 1978 Thous. Bbls. Daily	YEAR TO DATE AVERAGE Change – % –
Primary Demand									
Motor Gasoline (Unleaded)*	6,804 (2,909)	7,503 (2,727)	– 9.3 (6.7)	6,924 (2,899)	7,450 (2,655)	– 7.1 (9.2)	7,065 (2,808)	7,408 (2,522)	– 4.6 (11.3)
Jet Fuel	1,024	1,107	– 7.5	1,064	1,083	– 1.8	1,070	1,058	1.2
Kerosine	190	177	7.3	177	175	1.0	188	171	10.2
Distillate Fuel	3,653	3,583	2.0	2,989	3,108	– 3.8	3,260	3,364	– 3.1
Residual Fuel	2,822	2,845	– 0.8	2,482	2,726	– 8.9	2,721	3,015	– 9.7
All Other	4,316	3,957	9.1	4,350	3,982	9.3	4,097	3,745	9.4
Total Domestic Demand	18,809	19,172	– 1.9	17,986	18,524	– 2.9	18,401	18,760	– 1.9
Exports	444	409	8.6	445	452	– 1.4	472	353	33.5
Total Demand	19,253	19,581	– 1.7	18,431	18,976	– 2.9	18,872	19,114	– 1.3
New Supply									
Domestic	11,254	11,073	1.6	10,925	11,018	– 0.8	10,766	10,742	0.2
Crude Oil	8,576	8,742	– 1.9	8,492	8,788	– 3.4	8,502	8,683	– 2.1
Natural Gas Liquids	1,721	1,602	7.4	1,686	1,562	7.9	1,688	1,567	7.7
Other Supply	957	729	31.3	747	668	11.8	577	492	17.2
Imports	7,929	8,664	– 8.5	8,048	8,526	– 5.6	8,150	8,128	0.3
Crude Oil	6,208	6,643	– 6.5	6,390	6,621	– 3.5	6,335	6,142	3.1
Refined Products	1,721	2,021	– 14.8	1,658	1,905	– 13.0	1,816	1,986	– 8.6
Residual Fuel	952	1,351	– 29.5	955	1,261	– 24.3	1,084	1,341	– 19.2
All Other	769	670	14.8	703	644	9.1	732	645	13.5
Total New Supply	19,183	19,737	– 2.8	18,972	19,545	– 2.9	18,916	18,870	0.2
Crude Oil Refined	14,569	15,336	– 5.0	14,471	15,137	– 4.4	14,495	14,715	– 1.5
Stock Change	–70	156	–	541	569	–	44	–244	–
Stocks – End of Month in Million Barrels									
Gasoline	224	221	1.5						
Jet Fuel	36	33	9.9						
Kerosine	17	16	6.3						
Distillate Fuel	241	233	3.2						
Residual Fuel	93	89	5.0						
All Other	274	319	– 14.1						
Total Products	885	910	– 2.8						
Crude Oil	350	322	8.7						
Total – All Oils	1,235	1,232	0.2						

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

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JANUARY, 1980

REVIEW AND FORECAST

1979 was a year of confusion in world oil markets. First came the cut-off of Iranian oil exports in January which unraveled OPEC's program of controlled quarterly price increases. Instead of the planned 14.5 percent increase over the year, the price of Arabian light, the marker crude, almost doubled between December, 1978 and December, 1979. The spot market went berserk, with buyers paying as much as 50 percent above official contract prices. Traditional supply channels were disrupted as producing countries reduced sales to the international majors forcing the latter to discontinue deliveries to independent refiners. It was, in fact, the scramble by independent refiners to develop new supply sources that sustained the spot market prices long after an overall supply/demand balance had been achieved.

No other energy source was available in sufficient quantity to counter the rise in oil prices. In the United States, some conversions from oil to natural gas took place to take advantage of additional gas supplies made available to the interstate market under the provisions of the Natural Gas Policy Act of 1978. Coal use continued to be stymied by environmental considerations, and in any event coal conversions are expensive and time consuming and do not lend themselves to short term emergencies. Additional production from nuclear facilities was inhibited by the accident at the Three Mile Island plant in Pennsylvania.

The disintegration of the world oil market in 1979 was played out against the most uncertain political environment since the late nineteen thirties. The Russian invasion of Afghanistan at Christmas-time provided a dramatic prologue to the decade of the eighties. Under these circumstances there is more than the usual degree of uncertainty associated with our oil forecasts for 1980.

The worldwide adjustment to the quadrupling of oil prices in 1973-74 was well established when oil prices doubled again in 1979. Now, energy production, conversion and utilization technologies must be reevaluated. The process will begin this year. 1980 will be the beginning of more rapid transition. Transition to even slower energy growth from increased efficiency and intensified conservation efforts, and transition to lower oil consumption as alternatives to oil are developed more vigorously.

After increasing by 1.4 million barrels a day in 1979, world oil demand is expected to decline slightly in 1980 to 65.1 million barrels a day. The pattern of change varies from one region to another, but in general, an anticipated decline in the industrialized nations is offset by higher oil consumption in the developing world and the communist bloc. The following table provides some details of our forecast.

WORLD OIL DEMAND
(million barrels per day)

	1978	1979	1980
United States	18.9	18.5	18.1
Other Industrialized	21.3	22.0	21.7
Total Industrialized	40.2	40.5	39.8
Less Developed Countries	11.0	11.8	12.2
Non-Communist World	51.2	52.3	52.0
Communist Bloc	12.6	12.9	13.1
Total World	63.8	65.2	65.1

The United States is forecast to experience the largest decline in oil consumption from 18.5 million barrels a day in 1979 to 18.1 in 1980. Warmer than normal winter weather, a mild economic recession, and lower gasoline use due to the growing proportion of small cars represent the underlying reasons for lower oil demand.

Higher oil use in the Less Developed Countries is expected to offset the decline in the United States. Some of these LDC's are oil exporters and receive products for domestic use at prices far below the world level. Others have no alternative energy sources available and are forced to import oil to fuel their economic development. Implicit in our forecast is the assumption that these non-oil-producing LDC's will be able to finance the 1980 level of oil imports that we have assigned to them.

What changes can be anticipated in the pattern of oil supply in 1980? In the United States, no change is forecase in domestic production between 1979 and 1980. A small increase in production from the North Slope of Alaska will be offset by a reduction in output in the lower 48 states. Crude oil production in other non-OPEC areas, however, is expected to rise by 1.5 million barrels a day, paced by increases in Mexico and the North Sea. The communist bloc nations, too, are forecast to show a modest increase in production in 1980 of 0.3 million barrels a day. Some of this increase reflects higher output in China, part of which will be exported to the non-communist world.

The role of storage will be quite different in 1980. In 1979, about 1 million barrels a day of production went to fill storage tanks rather than to final consumers. Even though the new distribution patterns that are still being painfully worked out should cause higher permanent stock levels, we do not anticipate a further build up of stocks in 1980. In fact, despite the weak demand outlook, some drawdown of stocks seems inevitable and we have assumed that over the year it will average about 0.2 million barrels a day.

As the following table illustrates, to support current prices, production from OPEC countries in 1980 must drop to 28.3 million barrels a day from 31.4 million barrels daily in 1979.

WORLD OIL SUPPLY
(million barrels per day)

	1979	1980
United States	10.7	10.7
Other Non-OPEC	9.8	11.3
Communist Bloc	14.3	14.6
From Storage	– 1.0	0.2
	33.8	36.8
Demand	65.2	65.1
Required OPEC Production	31.4	28.3

The OPEC production decline of 3.1 million barrels a day is expected to be spread out among the major producers although we do not believe it will come about as a result of a coordinated production strategy. Even though a decline of this magnitude could easily be absorbed by the major producers without adverse economic consequences, delays in the timing of production cutbacks could generate considerable downward pressure on prices at the end of the winter. This should be sufficient to eliminate the large premium over contract prices that has been enjoyed by the spot market since midyear 1979, and may even cause minor reductions in those contract prices that are most out of line with the marker crude, Arabian light.

These general considerations lead to the price forecast shown in the table below.

WORLD OIL PRICES

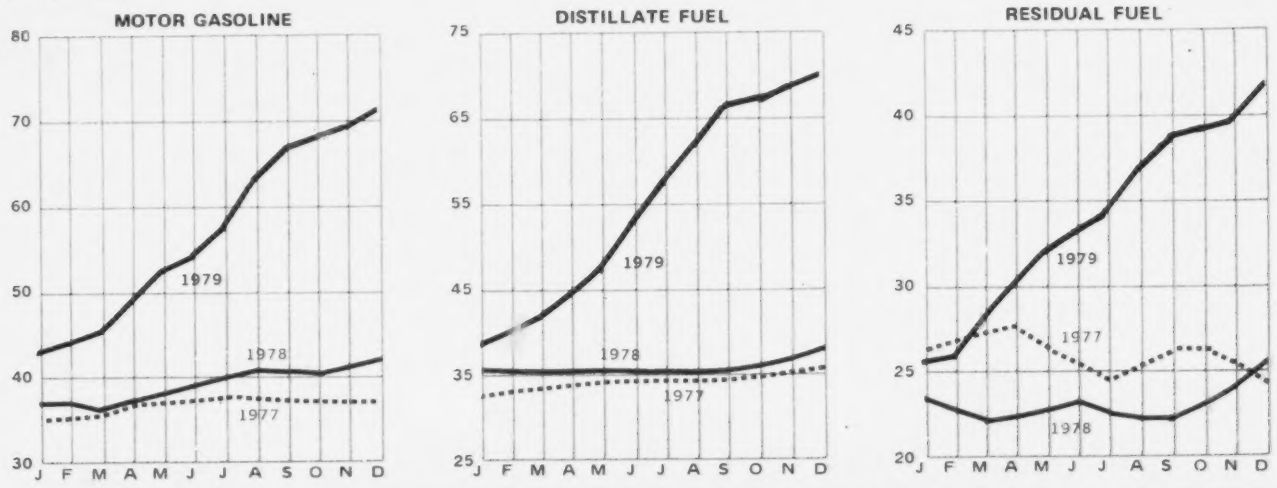
	Arabian Light	World Average	U.S. Imports
		(dollars per barrel)	
HISTORY			
4th Qtr 1978	$12.70	$13.00	$13.36
4th Qtr 1979	22.00	27.51	29.72
FORECAST			
1st Qtr 1980	26.00	27.80	29.86
4th Qtr 1980	27.30	29.08	31.16

The Arabian light marker crude is expected to remain at $26 a barrel through the end of the third quarter and then rise moderately to reflect the effects of the adoption of an OPEC long-term pricing strategy tied to inflation, currency values and economic growth. The world average price, which takes account of volumes as well as individual prices, is a weighted average price and reflects spot prices as well as contract prices. It is, in fact, the anticipated collapse of the spot market that results in the sharp narrowing of the gap between the Arabian light price and the world average price in the first quarter of 1980. The U.S. import price is the highest of the three prices shown in the table reflecting the fact that the U.S. imports a disproportionately high share of the more expensive crude oils. Compared with what took place in 1979, prices are expected to show much greater stability in 1980.

Over the next two years, however, imported oil prices will not be the major cause of rising product prices in the United States. Domestic crude oil prices, currently lower than imports, will rise much faster as phased decontrol moves domestic prices to the world level by October, 1981. Thereafter, U.S. consumers will pay the same price for all oil, both domestic and foreign.

Barring supply disruptions brought on by unforeseen political events, the outlook in 1980 is for a calmer year

U.S. Wholesale Prices . . .
BY MONTHS
cents per gallon



with an opportunity for both producers and consumers to start digesting the disturbing events of 1979.

John D. Emerson
with *David H. Knapp*

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Deliveries from storage in December of petroleum products once again posted a decline from the year-earlier level. They were, in fact, at the lowest December level since 1975. To some extent, this was induced by mild weather in those parts of the nation most dependent on heating oil. Based on degree day accumulations, temperatures in December averaged more than 14 percent warmer than normal and 8.5 percent warmer than in December, 1978.

All of the fuel oils registered declines. Kerosine was down by 8.8 percent, distillate fuel by 6 percent and deliveries of residual fuel were 3.2 percent below the movement in December, 1978. The gasoline decline was the largest, however, amounting to more than three quarters of a million barrels per day. After deducting the demand for unleaded gasoline, which continued to rise and now represents 44 percent of the total, the resulting drop in deliveries of leaded gasoline in December from the year-ago level approached one million barrels per day.

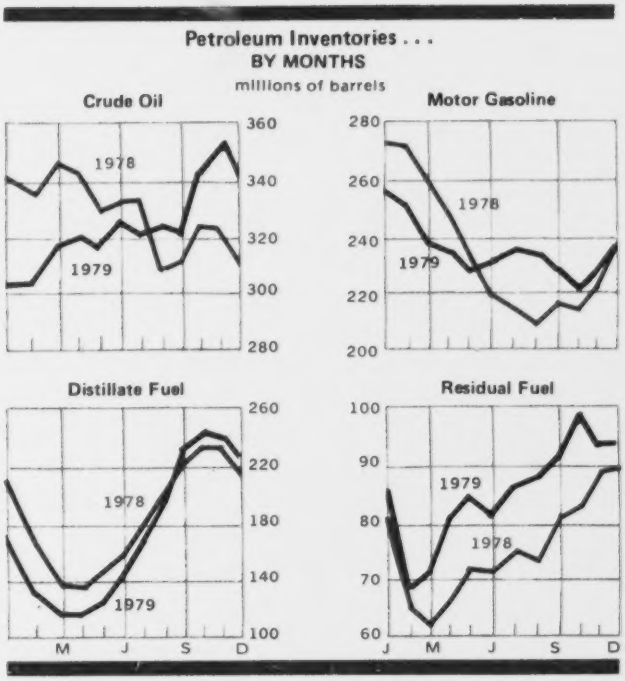
With preliminary data for December now in hand, our first assessment of the full year 1979 shows a drop in domestic demand for all petroleum products from 18.9 million barrels a day in 1978 to 18.5 million a day in 1979. A similar decline is anticipated in 1980.

SUPPLY

Total new supply in December was a scant 50 thousand barrels a day above the level in November. Domestic supply was about 550 thousand barrels a day lower, however, with almost all of the drop in the "other supply" category. Crude oil and natural gas liquids production was virtually unchanged. The drop in domestic supply was fully offset by higher imports of both crude oil and refined products.

For the year 1979 as a whole, total new supply was identical with 1978, although there were small differences among the components. Crude oil production was lower by 184 thousand barrels a day with declines in Texas and Louisiana largely offset by higher shipments from the North Slope of Alaska. Natural gas liquids production data showed a 6.8 percent increase in 1979 mainly as a result of a change in reporting procedures at the Department of Energy. Total imports in 1979 showed little change from 1978, although crude oil shipments were higher and product imports declined.

New domestic supply in 1980 is expected to remain at the 1979 level. This means that the lower demand forecast for 1980 will result in a reduced volume of imports compared with 1979 on the order of 400 thousand barrels a day.



STOCKS

Stock movements in December followed a fairly normal seasonal pattern. Distillate stocks, which include home heating oil, declined by 14 million barrels and gasoline stocks were built up by an equivalent amount. Overall, refined product stocks dropped by 6 million barrels in December and crude oil stocks by 8 million.

The stock position at the end of December gave no cause for concern. Crude oil stocks were more than 10 percent higher than a year earlier. While gasoline stocks finished the year at the same level as in 1978, in terms of days supply, there was greater availability due to the drop in demand. Gasoline stocks in December 1978 represented 32 days supply compared with 36 days supply in December 1979. Days supply of distillate fuel oil was even more comfortable, 58 in December, 1979 versus 52 a year earlier.

PRICES

The cost of crude oil to refiners continued its inexorable climb in November. The domestic composite price, a weighted average of all types of domestic crude oil, increased by 67 cents a barrel during the month. The increase in the delivered price of imported crude, however, was almost three times as large, rising by $1.98 a barrel to an average of $27.02 for the month. This led to an increase in the combined domestic and foreign price in November of $1.36 a barrel, or 3.25 cents a gallon, over the level in October.

After rising by an average of 2.5 cents per gallon in each month through October, the increase in wholesale

refined product prices slowed considerably in November. Gasoline prices rose by 1.7 cents a gallon, but for the fuel oils the increase was half a cent a gallon or less. The average price increase in November for the four major products was only 0.43 cents a gallon, much less than the rise in crude costs.

As a result, the spread between refiners' gross revenue and crude oil costs dropped sharply, as shown in Table 3.

TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	NOVEMBER 1979		NOVEMBER 1978	
Lower Tier	6.59	12.0	6.12	17.4
Upper Tier	14.26	18.1	13.02	18.4
Alaska	21.81	8.4	12.98	7.0
Stripper	29.49	10.6	14.49	7.5
NPR	26.84	0.7	13.21	0.7
Newly Discovered	33.67	1.4	–	–
Heavy Oil	19.70	1.8	–	–
Tertiary	23.34	0.1	–	–
Domestic Composite	17.65	53.2	10.87	51.0
Imported	27.02	46.8	14.72	49.0
Composite	**22.04**	**100.0**	**12.76**	**100.0**
"Entitlements" Penalty	0.13	–	0.03	–
Refiner Acquisition Cost	22.17	–	12.79	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1979 DEC.	1979 NOV.	1979 OCT.	1978 DEC.
Motor Gasoline	71.7	69.7	68.0	42.1
Kerosine	71.9	69.7	69.2	39.6
Distillate Fuel	69.4	67.3	67.0	37.8
Residual Fuel	41.5	39.7	39.3	25.2

Source: Independent Petroleum Association of America

For Type 2 (Fuel oil oriented) refineries the November spread was the lowest for any month in 1979.

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
August 1979	4.34	0.65
September 1979	5.69	1.51
October 1979	5.65	1.45
November 1979	4.70	0.35

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	DECEMBER 1979	DECEMBER 1978	Change	3 MOS. AVERAGE 1979	3 MOS. AVERAGE 1978	Change	YEAR TO DATE AVERAGE 1979	YEAR TO DATE AVERAGE 1978	Change
	Thous. Bbls. Daily		– % –	Thous. Bbls. Daily		– % –	Thous. Bbls. Daily		– % –
Primary Demand									
Motor Gasoline	6,697	7,451	- 10.1	6,812	7,467	- 8.8	7,026	7,412	- 5.2
(Unleaded)*	(2,970)	(2,788)	(6.5)	(2,938)	(2,667)	(10.2)	(2,829)	(2,534)	(11.6)
Jet Fuel	1,096	1,046	4.8	1,056	1,073	- 1.6	1,069	1,057	1.2
Kerosine	208	228	- 8.8	202	193	4.6	193	175	10.2
Distillate Fuel	3,907	4,156	- 6.0	3,470	3,606	- 3.7	3,330	3,432	- 3.0
Residual Fuel	3,007	3,107	- 3.2	2,673	2,858	- 6.5	2,772	3,023	- 8.3
All Other	4,331	3,972	9.0	4,355	3,992	9.1	4,075	3,764	8.3
Total Domestic Demand	19,246	19,960	- 3.6	18,568	19,189	- 3.2	18,466	18,862	- 2.1
Exports	443	456	- 2.9	444	445	- 0.2	465	362	28.5
Total Demand	19,689	20,416	- 3.6	19,012	19,634	- 3.2	18,932	19,224	- 1.5
New Supply									
Domestic	10,706	10,725	- 0.2	10,958	10,992	- 0.3	10,784	10,767	0.2
Crude Oil	8,581	8,662	- 0.9	8,567	8,741	- 2.0	8,524	8,708	- 2.1
Natural Gas Liquids	1,660	1,566	6.0	1,680	1,569	7.1	1,674	1,567	6.8
Other Supply	465	497	- 6.4	711	682	4.2	586	492	19.0
Imports	8,527	8,997	- 5.2	8,203	8,592	- 4.5	8,189	8,202	- 0.2
Crude Oil	6,415	6,751	- 5.0	6,394	6,598	- 3.1	6,332	6,194	2.2
Refined Products	2,112	2,246	- 6.0	1,810	1,995	- 9.3	1,858	2,008	- 7.5
Residual Fuel	1,208	1,409	- 14.3	1,017	1,294	- 21.4	1,100	1,355	- 18.8
All Other	904	837	8.0	793	701	13.1	757	653	16.0
Total New Supply	19,233	19,722	- 2.5	19,161	19,584	- 2.2	18,973	18,969	0.0
Crude Oil Refined	14,833	15,421	- 3.8	14,576	15,252	- 4.4	14,512	14,775	- 1.8
Stock Change	–456	–694	–	149	–49	–	42	–255	–
Stocks – End of Month in Million Barrels									
Gasoline	238	238	0.2						
Jet Fuel	38	34	12.6						
Kerosine	16	14	10.9						
Distillate Fuel	228	216	5.4						
Residual Fuel	94	90	3.7						
All Other	247	309	- 20.1						
Total Products	861	901	- 4.4						
Crude Oil	343	309	10.8						
Total – All Oils	1,204	1,211	- 0.6						

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

A monthly review from the Treasury Department — THE CHASE MANHATTAN BANK, N.A., NEW YORK, N.Y. 10081

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Vol. 4 — No. 2
FEBRUARY, 1980

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Higher prices, replacement of oil by natural gas and coal and warmer than normal weather all contributed to lower oil demand in January. The movement into domestic consumption channels of all petroleum products amounted to 18.6 million barrels a day — 2 million barrels a day, or 10 percent, below the year-earlier level. For the fuel oils, January, 1980 saw the lowest demand level in more than five years.

The only product to show steady gains in demand is unleaded gasoline. As old cars are scrapped and new ones equipped with catalytic converters, join the U.S. vehicle fleet the proportion of unleaded gasoline continues to grow. In January unleaded amounted to 45 percent of total gasoline deliveries, and at the present rate of growth it will overtake deliveries of leaded gasoline by the end of this year. Total gasoline demand in January was not only lower than a year ago, it was also below the level of two years ago.

It was the fuel oils, however, kerosine, distillate and residual, that experienced the greatest declines under the influence of the three factors mentioned in the opening sentence. Deliveries of distillate fuel, which includes home heating oil, were at the lowest January level since 1972. In the case of residual fuel oil, this January's level was the lowest since January, 1974. Weather had a minor impact on consumption, higher world prices played a major role and government conservation policy had little impact at all except in the case of gasoline.

SUPPLY

Domestic production of crude oil in January was virtually identical with the year-earlier level, although the geographic dispersion has changed considerably over the past twelve months. There were declines in Texas and Louisiana amounting to about 100 thousand barrels a day in each state. These were more than offset by a 275 thousand barrel a day increase in Alaskan North Slope production. Output from that region has now reached 1.5 million barrels daily which represents the maximum available from existing pipeline facilities.

Despite the lower level of demand in January, imports of crude oil and products remained at the December level. The new supply of crude oil from domestic and foreign sources was more than a quarter of a million barrels a day above the quantity refined or eported leading to the conclusion that the industry is still building stocks to protect itself against probable cutbacks in foreign production.

STOCKS

Readers who follow closely the statistics on the back page are advised that the API revised its December 31 stocks of "all other" upward by 31 million barrels. The January 31 figure for this category thus represents a decline of 4 million barrels during the month rather than an increase of 27 million barrels.

A lower than normal draw down of refined products coupled with a contra-seasonal 10 million barrels increase in crude oil stocks resulted in one of the very few instances on record in which stocks of all oils actually rose in January.

Compared with 1979, stocks of major products at the end of January were 56 million barrels higher and crude oil stocks were up by 50 million barrels. Only minor product stocks were lower than a year earlier.

PRICES

During 1979, average refiner crude oil acquisition costs increased by 83 percent from $12.96 a barrel in December, 1978 to $23.78 a barrel a year later. Import prices almost doubled, moving from $14.92 to $28.91 and even this rise is understated since the data do not include the retroactive increase in Saudi Arabian prices. The lifting of price controls on several categories of domestic crude oil at the beginning of June resulted in about one third of U.S. production being sold at the world price. By December, average refiner costs of U.S. crude had risen by 73 percent over the year-earlier level.

Barring unforeseen political developments, we do not expect such sharp price increases in 1980. Progressive decontrol in the United States will raise domestic prices by about one third between December, 1979 and December, 1980. Imported oil is only expected to increase by about half as much due to high stocks and weak demand in the major consuming countries.

All categories of crude oil increased in price in December from the level in November. The average

TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	DECEMBER 1979		DECEMBER 1978	
Lower Tier	6.88	11.5	6.23	17.1
Upper Tier	14.40	18.4	13.13	17.8
Alaska	22.05	8.8	12.94	7.2
Stripper	33.43	10.4	14.57	7.9
NPR	28.85	0.8	13.37	0.6
Newly Discovered	36.73	1.7	–	–
Heavy Oil	24.43	1.9	–	–
Tertiary	28.44	0.0	–	–
Domestic Composite	19.03	53.5	11.00	50.6
Imported	28.91	46.5	14.92	49.4
Composite	**23.63**	**100.0**	**12.93**	**100.0**
"Entitlements" Penalty	0.15	–	0.03	–
Refiner Acquisition Cost	23.78	–	12.96	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

refiner acquisition cost rose by 3.8 cents a gallon, almost double the rise in wholesale prices of major products. As a result, refiners' spread between gross revenue and crude oil costs declined in December for the third successive month. For fuel oil oriented (Type 2) refiners, the spread was negative for the first time in 1979. Since the margin shown in our table 3 omits capital and operating

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 JAN.	1979 DEC.	1979 NOV.	1979 JAN.
Motor Gasoline	74.9	71.7	69.7	42.9
Kerosine	75.9	71.9	69.7	40.4
Distillate Fuel	73.5	69.4	67.3	38.8
Residual Fuel	43.0	41.5	39.7	25.4

Source: Independent Petroleum Association of America

costs, it is apparent that some refiners lost close to a dollar a barrel on their December operations.

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
September 1979	5.69	1.51
October 1979	5.65	1.45
November 1979	4.70	0.35
December 1979	3.94	−0.44

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	JANUARY 1980	JANUARY 1979	Change – % –	3 MOS. AVERAGE 1980	3 MOS. AVERAGE 1979	Change – % –
	Thous. Bbls. Daily			Thous. Bbls. Daily		
Primary Demand						
Motor Gasoline	6,572	6,893	- 4.7	6,690	7,280	- 8.1
(Unleaded)*	(2,943)	(2,634)	(11.7)	(2,941)	(2,675)	(10.0)
Jet Fuel	1,072	1,100	- 2.5	1,064	1,084	- 1.8
Kerosine	221	331	- 33.2	207	246	- 16.1
Distillate Fuel	3,819	4,543	- 15.9	3,795	4,100	- 7.4
Residual Fuel	3,097	3,533	- 12.3	2,977	3,165	- 5.9
All Other	3,837	4,256	- 9.8	4,160	4,063	2.4
Total Domestic Demand	18,618	20,656	- 9.9	18,892	19,938	- 5.2
Exports	435	389	11.8	441	418	5.4
Total Demand	19,053	21,045	- 9.5	19,333	20,356	- 5.0
New Supply						
Domestic	10,759	10,302	4.4	10,903	10,696	1.9
Crude Oil	8,459	8,457	0.0	8,538	8,619	- 0.9
Natural Gas Liquids	1,684	1,748	- 3.7	1,688	1,639	3.0
Other Supply	616	97	535.1	676	438	54.5
Imports	8,462	8,767	- 3.5	8,310	8,811	- 5.7
Crude Oil	6,447	6,562	- 1.8	6,358	6,652	- 4.4
Refined Products	2,015	2,205	- 8.6	1,952	2,159	- 9.6
Residual Fuel	1,203	1,355	- 11.2	1,123	1,373	- 18.2
All Other	812	850	- 4.5	829	786	5.4
Total New Supply	19,221	19,069	0.8	19,213	19,507	- 1.5
Crude Oil Refined	14,340	14,658	- 2.2	14,581	15,136	- 3.7
Stock Change	168	−1,976	–	−120	−849	–
Stocks – End of Month in Million Barrels						
Gasoline	260	256	1.7			
Jet Fuel	38	32	18.2			
Kerosine	15	11	32.7			
Distillate Fuel	209	176	18.7			
Residual Fuel	91	86	5.6			
All Other	274	294	- 7.1			
Total Products	887	851	4.2			
Crude Oil	353	303	16.7			
Total – All Oils	1,240	1,154	7.4			

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

A monthly review from Energy Economics – THE CHASE MANHATTAN BANK, N.A. NEW YORK, N.Y. 10081

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WINDFALL PROFITS TAX

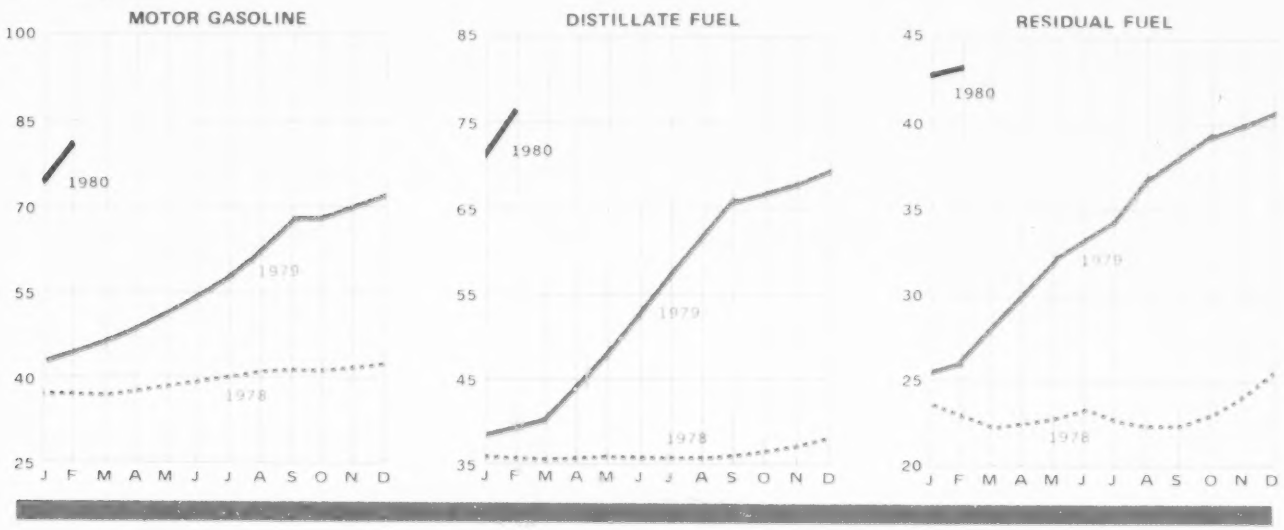
Remember when President Carter proposed a gigantic synthetic fuels program as one of his periodic attempts to solve the energy problem? It was about a year ago. The program contemplated spending about $88 billion for this purpose during the nineteen eighties, plus another $54 billion for other energy-related projects. The problem, of course, was how to pay for them. Thus was born the brilliant idea of taxing the oil industry to pay for projects that they would probably have invested in anyhow.

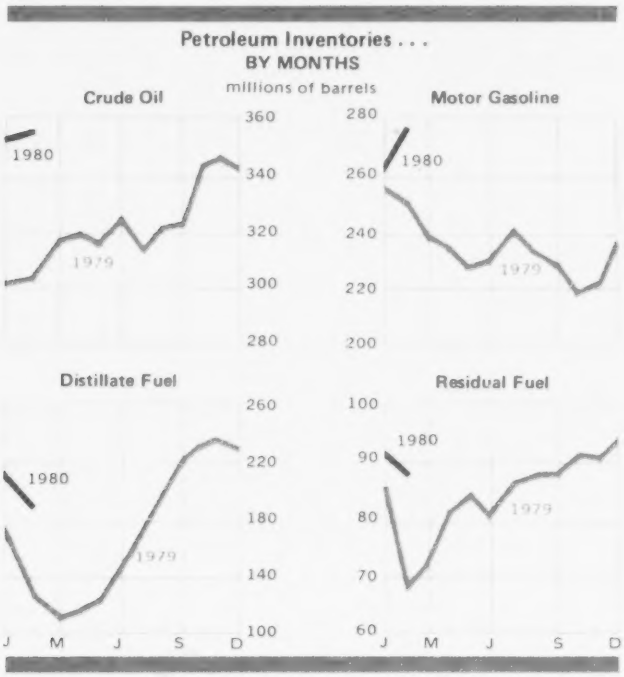
Well, with the signing into law of the Windfall Profits Tax, the Administration has got its $142 billion, and more. Based on free market prices, which are estimated to rise to $75 a barrel by 1990, the government concludes that a trillion dollar windfall will occur during the eighties as a result of price decontrol.

This is a very dubious calculation, since it arises out of the subtraction from world market prices of a series of arbitrary numbers which are intended to reflect the prices producers would have received had price controls remained in effect. Much of the production which will be affected by the new law has nothing to do with price decontrol. It is new oil that has never been subject to price controls for the simple reason that it has not yet been found.

Without changes in the tax laws, about half of the so-called windfall would have gone to various arms of government in the form of higher income taxes, severance taxes and royalties. The application of the Windfall Profits Tax will add another $227 billion to the government share, bringing it to about $700 billion dollars over the decade. The federal government's share of the windfall amounts to 83 percent, with the balance going to state and local governments. State severance taxes, which are deducted

U.S. Wholesale Prices . . .
BY MONTHS
cents per gallon





before arriving at the windfall, will also increase, since they are a fixed percentage of the selling price.

As might be expected, the Windfall Profits Tax is an extremely complex piece of legislation, guaranteed to add to the administrative burdens of all who are subject to it. Accountants and lawyers will have a field day. In fact, it will be quite a while before even some of the definitions are agreed upon by the parties involved.

The Windfall Profits Tax is billed as an excise tax, payable by the first purchaser of the oil. Right away this definition calls into question its constitutionality. An excise tax must be applied uniformly over the whole country, which this tax is not since certain parts of Alaska are exempt. An excise tax is a tax on a privilege, such as the privilege of removing oil from a property. In many instances, however, the removal of oil constitutes a legal obligation, not a privilege. Finally, an excise tax cannot be applied retroactively, which is being attempted since the law was signed after the March 1 implementation date.

The Windfall Profits Tax amounts to an expense-free government share in oil production. In fact, it might almost be considered equivalent to the taking of property without compensation. While the Windfall Profits Tax ultimately may not be found unconstitutional, it contains enough questionable features to lead to the conclusion that there is likely to be a flurry of litigation, particularly on the part of small royalty owners who may only now be realizing that they are covered by the act.

Even assuming the Windfall Profits Tax Act survives challenges to its constitutionality, the question arises as to who will actually pay the tax. Nominally, the tax is paid by the producer, although it is collected by the first purchaser. Since some crude oil is already free from price control and all production will be decontrolled by October, 1981, the probability exists that producers will add their Windfall Tax liability to the price they charge the first purchaser. The first purchaser will pass the price, plus tax, along to subsequent purchasers, and eventually it will be paid by consumers of refined products.

Theoretically, the price of imported crude should set a ceiling on the price charged by domestic producers. This would be true if world oil production were sufficient to provide buyers with a choice of supplier. But such is unlikely to be the case. If domestic refiners attempt to purchase additional supplies of foreign oil, they would in all probability force up the spot foreign price above the domestic price, plus tax. In a tight supply situation, buyers have very little room to maneuver.

Of the $228 billion of net revenue from the Windfall Profits Tax which will accrue to the federal government, only 15 percent, or $34 billion, has been earmarked by Congress for energy conservation or production programs. It now seems that most of the tax revenues will be paid by one group of consumers and rebated through the tax mechanism to another group of consumers. Many fear that the Windfall Profits Tax Act will become nothing more than a revenue raising plan designed to fund an overgrown federal budget, rather than a serious, if misguided, attempt to finance projects yielding new supplies of domestic energy.

John D. Emerson

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Weather and prices led to a sharp drop in petroleum project deliveries from primary storage in February. The largest year-to-year decline ever recorded, in fact. Averaging 18.4 million barrels daily, domestic petroleum demand was 2.8 million barrels a day below the level in February, 1979.

Total gasoline deliveries were 8.6 percent below the year-earlier level. Indeed, they were at the lowest level since February, 1976, and would probably have fallen even further but for the good driving weather and lack of snow in February, 1980. Unleaded gasoline continues to show gains and now accounts for 45.5 percent of total gasoline use, compared to 38.3 percent a year earlier.

It was the fuel oils, however, that posted the greatest declines in demand. Deliveries of distillate and residual fuel together dropped almost 1.5 million barrels a day below the level in February, 1979. Weather played an important role. Temperatures in the oil heating areas averaged ten percent warmer than in February, 1979. Conversions from oil to natural gas are another important factor in the lower demand for fuel oils. These have been occurring in both the residential and industrial areas, even including electric power plants.

SUPPLY

Domestic production of crude oil and natural gas liquids in February was virtually unchanged from the January level. Imports, however, were almost half a million barrels a day lower. With domestic production expected to remain stable over most of the year and demand continuing to drop, imports should remain below year-earlier levels.

Despite the refinery strike that started in early January, crude oil processing in February was maintained at a level fully adequate to satisfy demand.

STOCKS

The low level of deliveries in February resulted in a very modest drop in stocks. Crude oil stocks even increased slightly and reached a record 355 million barrels by month end. Product stocks fell by only 4 million barrels during the month in sharp contrast to the 82 million barrel decline in February a year earlier.

By the end of the month, stocks of crude oil and major refined products were considerably higher than in February, 1979. Distillate fuel was up by 60 million barrels, gasoline by 23 million and residual fuel by 20 million barrels. With winter over, and the spring and summer stock build-up approaching, new supply may have to be cut to prevent unmanageable stock levels from developing.

PRICES

The average cost of crude oil to refineries reached $24.98 a barrel in January, $1.20 a barrel above the level in December, 1979 and almost double the level of January, 1979. Imported oil averaged $30.75, and the domestic composite price amounted to $19.78 a barrel.

Wholesale prices of gasoline, kerosine and distillate fuel increased in January by more than the rise in crude costs. Residual fuel oil, which is extensively traded internationally and which is currently suffering from high supplies and weak demand, posted a more modest 1.5 cent a gallon increase, little more than half the 2.9 cent a gallon rise in refiner acquisition costs of crude oil.

Demand For Petroleum Products . . .

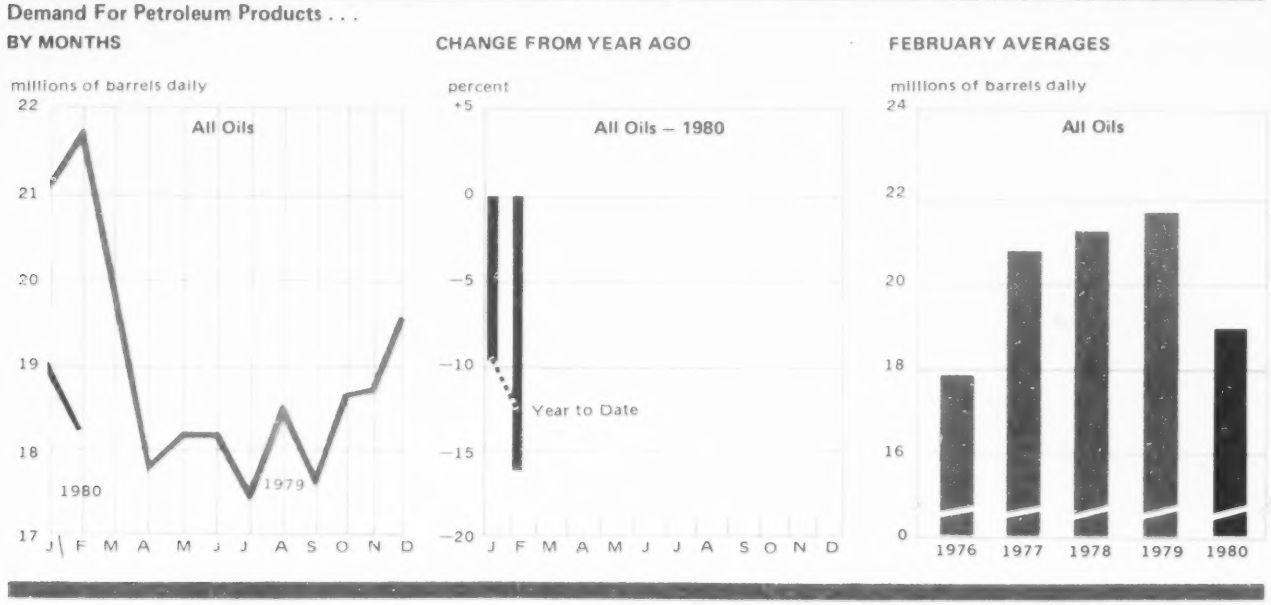


TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	JANUARY 1980		JANUARY 1979	
Lower Tier	6.86	11.6	6.20	18.7
Upper Tier	14.40	17.9	13.12	18.6
Alaska	23.46	9.2	13.15	7.2
Stripper	34.14	10.6	15.10	8.5
NPR	29.82	0.7	13.51	0.7
Newly Discovered	38.85	1.7		
Heavy Oil	28.58	3.4		
Tertiary	28.94	0.0		
Domestic Composite	19.78	55.1	11.02	53.7
Imported	30.75	44.9	15.47	46.3
Composite	**24.81**	**100.0**	**13.08**	**100.0**
"Entitlements" Penalty	0.17		0.03	
Refiner Acquisition Cost	24.98		13.11	

Sources: U.S. Department of Energy
Chase Manhattan Bank

As a result, the gasoline oriented (Type 1) refineries experienced a slight increase in the spread between gross revenue and crude oil costs, while fuel oil oriented (Type 2) refineries went deeper into the red as crude oil costs exceeded gross revenue by 56 cents a barrel.

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 FEB.	1980 JAN.	1979 DEC.	1979 FEB.
Motor Gasoline	80.8	74.9	71.7	43.8
Kerosine	78.6	75.9	71.9	41.5
Distillate Fuel	76.4	73.5	69.4	39.9
Residual Fuel	43.4	43.0	41.5	25.8

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
October 1979	5.65	1.45
November 1979	4.70	0.35
December 1979	3.94	-0.44
January 1980	4.09	0.56

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	FEBRUARY 1980 Thous. Bbls. Daily	FEBRUARY 1979 Thous. Bbls. Daily	Change - % -	3 MOS. AVERAGE 1980 Thous. Bbls. Daily	3 MOS. AVERAGE 1979 Thous. Bbls. Daily	Change - % -	YEAR TO DATE AVERAGE 1980 Thous. Bbls. Daily	YEAR TO DATE AVERAGE 1979 Thous. Bbls. Daily	Change - % -
Primary Demand									
Motor Gasoline	6,640	7,267	- 8.6	6,622	7,202	- 8.0	6,583	7,070	- 6.9
(Unleaded)*	(3,020)	(2,781)	(8.6)	(2,977)	(2,733)	(8.9)	(2,980)	(2,704)	(10.2)
Jet Fuel	1,056	1,137	- 7.1	1,075	1,093	- 1.6	1,064	1,118	- 4.8
Kerosine	214	341	- 37.2	221	299	- 26.1	227	336	- 32.3
Distillate Fuel	3,849	4,792	- 19.7	3,853	4,487	- 14.1	3,825	4,661	- 17.9
Residual Fuel	3,111	3,596	- 13.5	3,070	3,406	- 9.9	3,104	3,563	- 12.9
All Other	3,502	4,034	- 13.2	3,899	4,089	- 4.6	3,673	4,151	- 11.5
Total Domestic Demand	18,372	21,167	- 13.2	18,741	20,575	- 8.9	18,476	20,899	- 11.6
Exports	394	488	- 19.3	425	443	- 4.0	416	436	- 4.7
Total Demand	18,766	21,655	- 13.3	19,166	21,018	- 8.8	18,891	21,335	- 11.5
New Supply									
Domestic	10,660	10,405	2.5	10,672	10,480	1.8	10,654	10,351	2.9
Crude Oil	8,506	8,498	0.1	8,516	8,540	- 0.3	8,481	8,476	0.1
Natural Gas Liquids	1,646	1,703	- 3.3	1,664	1,671	- 0.4	1,666	1,727	- 3.5
Other Supply	508	204	149.0	492	268	83.5	506	148	242.3
Imports	8,033	8,318	- 3.4	8,351	8,707	- 4.1	8,258	8,554	- 3.5
Crude Oil	6,096	6,249	- 2.4	6,326	6,530	- 3.1	6,280	6,413	- 2.1
Refined Products	1,937	2,069	- 6.4	2,024	2,177	- 7.0	1,977	2,140	- 7.6
Residual Fuel	1,155	1,307	- 11.6	1,190	1,359	- 12.4	1,180	1,332	- 11.4
All Other	782	762	2.6	834	818	1.9	797	808	- 1.4
Total New Supply	18,693	18,723	- 0.2	19,022	19,186	- 0.9	18,912	18,905	0.0
Crude Oil Refined	14,245	14,121	0.9	14,490	14,754	- 1.8	14,310	14,403	- 0.6
Stock Change	-73	-2,932	-	-144	-1,832	-	21	-2,430	-
Stocks – End of Month in Million Barrels									
Gasoline	275	251	9.4						
Jet Fuel	38	30	24.5						
Kerosine	14	10	42.0						
Distillate Fuel	187	127	47.5						
Residual Fuel	88	68	28.8						
All Other	293	282	3.8						
Total Products	895	769	16.4						
Crude Oil	355	303	17.2						
Total – All Oils	1,250	1,072	16.6						

Totals may not add due to rounding
*Included in motor gasoline

Sources — *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

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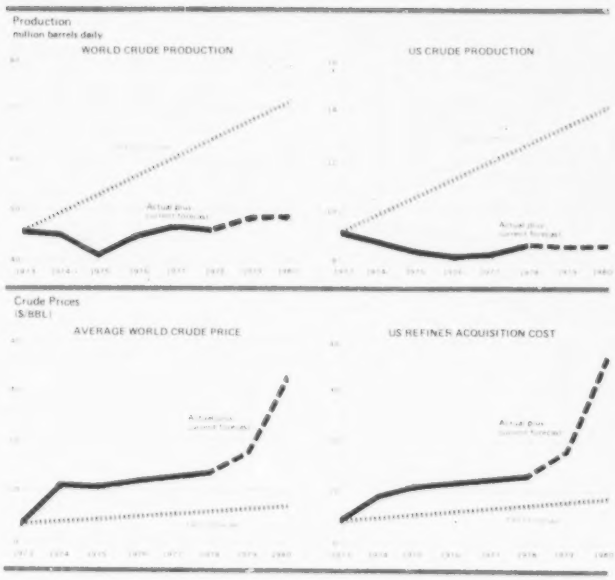
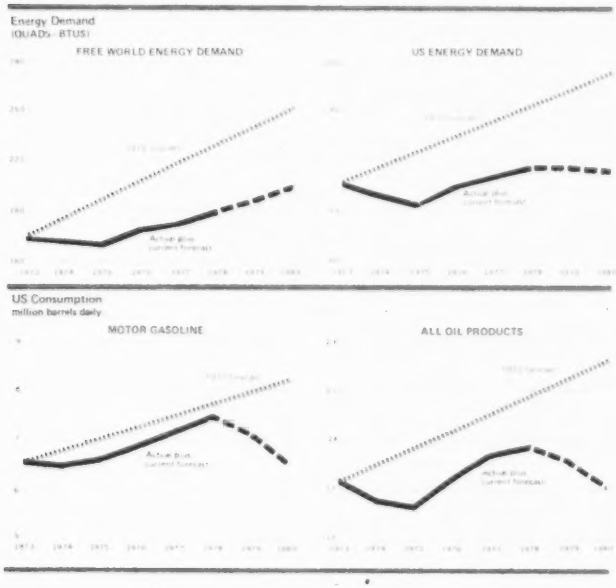
APRIL, 1980

WHAT HAS CHANGED?

The increase in attention that has been paid to energy issues in general, and to oil in particular, since early 1972 has been enormous. From a society that looked on energy as a virtually inexhaustible resource, we have become a nation where declining total energy consumption is a fact, though some resumption in growth is anticipated. As we enter a recession that has been, to a significant degree, exacerbated by recent oil price jumps, a recap on all that has changed may help put things in perspective.

Below we have plotted some relevant data from 1973 to 1980 and compared them with forecasts for the period made in 1973. The changes, particularly in the perception of demand and prices, are dramatic. Our current projections for 1980 have U.S. consumption of oil products in total very little different from 1973. Gasoline usage should be lower than the level for 1973. Free world oil production is also expected to be slightly lower than in 1973. Total energy demand for the U.S. in 1980 is expected to be only 4.4% over 1973 demand, and free world demand for energy 13.3% over 1973.





However, the growth of individual product and market sectors varies considerably from the aggregate. In the U.S., for example, energy consumption by the residential and commercial sector rose by 10.3% between 1973 and 1979, while industrial use in 1979 was identical with the use in 1973. The actual mix of energy source used by the major sectors of the economy has also changed significantly, with oil consumption in the U.S. rising in the industrial sector, essentially to replace declining use of natural gas, and falling in the residential sector. The changes have been complex, and a point to remember: they will be even more complex in the future.

Examples of the type of change occurring are as obvious as the downsizing of automobiles. Other changes are more subtle and are a function of relative fuel costs. An example of this is the significant narrowing of the fuel cost difference per mile for airline travel as compared to auto travel. Another is the growing usage of

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slow speed diesel engines in ships, displacing steam turbines. Diesel engines have a higher capital cost, but an increased efficiency. At 1973 prices, the capital cost outweighed the efficiency. At 1980 prices, the efficiency outweighs the capital cost.

IMPACT ON REFINERS

One industry vitally affected by the changes in energy patterns is oil refining. U.S. refineries will handle between 1.5 and 2.0 million barrels a day more oil in 1980 than in 1973. The value of that oil was about $48.5 million per day in 1973, but will be ten times that in 1980 — close to half a billion dollars per day.

In 1973 the product mix required from the refiners was not expected to change drastically. The major concern was over the ability of refiners to produce unleaded gasoline and low sulfur fuel oils. However, the demand pattern now expected in the 1980s is much less certain. For example, diesel fuel is expected to make up a significant share of the automobile fuel market, but a dramatic improvement in gasoline engine efficiency could reverse this trend. Countering the effect of the switch from steam turbines to slow speed diesel engines in ships is the finding that these slow speed diesels can tolerate heavier fuel oils than was anticipated; thus the impact of the engine change is minimized.

These are just two examples of a level of uncertainty in product demand. Compounding these potential demand variations is the much greater volatility of the crude oil supply market. In the future, refiners will have to run a much broader range of crude qualities — more than these facilities were designed for. This results from the replacement of the major oil companies as prime sources of crude oil for most refineries with a series of individual arrangements between refiners and crude producers, sometimes via an intermediate broker or trader. These new arrangements, certainly in the early years, will be generally less efficient than the previous operations via contracts with the major oil companies.

Perhaps the most significant development in the outlook for energy is the use of oil supplies as a political weapon and greater government involvement in the importing states. Programs such as the Buy/Sell crude oil program in the U.S. will force the use of a broader range of crudes, exaggerating the effect of the less efficient market. Consumer government actions of the type experienced last year — when the EPA instructed refiners to make more unleaded gasoline, until a large surplus developed — will also amplify the product "demand" swings.

The refiner is handling a much more costly product, with crude supply and product demand swings putting a much greater demand on operating flexibility. This combination of circumstances is going to force a more cautious operating philosophy and lead to significant lowering of the effective capacity of existing refineries, both here and in the rest of the world. Where we were contemplating a sizeable surplus of capacity only two years ago, we could be entering a period where refining capacity will again be tight, particularly capacity to convert heavy oils to lighter products.

Colin Carter

CHASE GROUP — PRELIMINARY 1979 FINANCIAL RESULTS

The doubling of world crude oil prices from 1978 to 1979 was the key factor which raised the Chase Group's worldwide revenues and net income to the record levels of $450 billion and $31.2 billion respectively, as shown in Figure 1. The 107.5 percent net income growth from 1978 to 1979 raised the return on the Group's average invested capital from 13.2 percent to 23.8 percent.

Figure 1-

Worldwide	1979	1978	Change Mill. $	Change %
	Million Dollars			
Gross Revenue	450,444	341,087	+109,357	+ 32.1
Operating Costs	377,209	298,074	+ 79,135	+ 26.5
Income Taxes	42,070	27,996	+ 14,074	+ 50.3
Net Income	31,165	15,017	+ 16,148	+107.5
Return on Avg. Invested Capital	23.8%	13.2%	—	—

Figure 2 and 3 present a breakdown of the Group's worldwide 1979 results into U.S. and rest of world.

Figure 2-

Outside U.S.	1979	1978	Change Mill. $	Change %
	Million Dollars			
Gross Revenue	260,727	200,683	+60,044	+ 29.9
Operating Costs	210,189	172,048	+38,141	+ 22.2
Income Taxes	32,465	21,954	+10,511	+ 47.9
Net Income	18,073	6,681	+11,392	+170.5
Return on Avg. Invested Capital	29%	12.5%	—	—

Figure 3-

United States	1979	1978	Change Mill. $	Change %
	Million Dollars			
Gross Revenue	189,717	140,404	+49,313	+35.1
Operating Cost	167,020	126,025	+40,995	+32.5
Income Taxes	9,605	6,043	+ 3,562	+58.9
Net Income	13,092	8,336	+ 4,756	+57.1
Return on Avg. Invested Capital	19.1%	13.8%	—	—

Approximately 71 percent of the Group's earnings increase occurred outside the U.S. The results from Foreign operations shown in Figure 2 reflects improved profit margins, which accompanied higher crude oil prices especially in Western Europe, where there was a considerable relaxation of controls on product prices.

In the U.S., the 57 percent profit improvement from 1978 to 1979 reflects benefits from decontrol, which began toward the middle of the year.

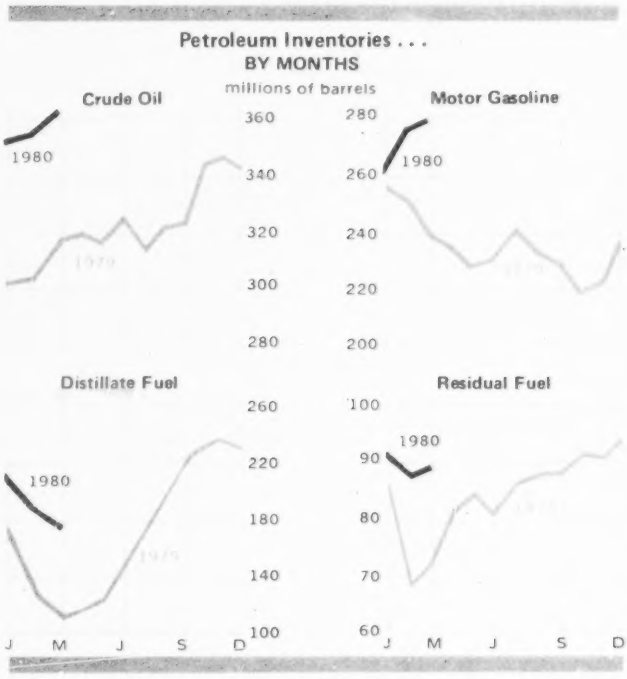
Overall, net income of the Group will continue to improve in 1980 as a greater volume of domestic crude is freed from control and prices move toward world levels.

The sizable increase in 1979 earnings enabled the Group to make a dramatic increase in capital expendi-

Figure 4-

Capital Expenditures	1979	1978	Change Mill. $	Change %
	Million Dollars			
Production	29,517	18,602	+10,915	+58.7
Transportation	2,143	1,136	+ 1,007	+88.6
Refineries and Chemical Plants	7,028	5,706	+ 1,322	+23.2
Marketing	2,578	2,197	+ 381	+17.3
Other	2,597	2,252	+ 345	+15.3
Total	43,863	29,893	+13,970	+46.7

tures from $29.9 billion in 1978 to approximately $44 billion in 1979 (Figure 4). Capital outlays exceeded earnings during the year by about 40 percent. By far the largest outlay — $29.5 billion — was for locating and developing new sources of petroleum. These production expenditures accounted for approximately 67 percent of the Group's total capital investments during 1979, up from 62 percent in 1978.



UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

One of the features of oil product demand this year has been the greater than anticipated decline in demand over the first three months compared to last year. Since the weather was colder than usual in March, a jump in demand for middle distillate would be expected; but demand was down considerably. While the significant price increase contributed much to this lower demand, it is also likely that the hign interest rates have led to some decline in tertiary (not recorded) stocks. To put this first quarter decline in perspective, the first quarter of 1974 showed a decline of 8.5% or 1.4 million barrels per day (mm/bd) in total demand for oil products compared to the 1973 quarter. The first quarter 1980 demand was down 2.5 mm/bd or 12.2% compared to 1979.

SUPPLY

Domestic crude production, both lower 48 and North Slope, was up slightly compared with last year. The high stock levels (discussed below), due mostly to significantly reduced demand, led to a substantial reduction in imports compared to March 1979.

STOCKS

Total stocks are approaching the record levels of the end of 1977, and gasoline stocks in particular are 17 million barrels higher than any monthly recorded figure. Distillate and residual fuel stocks are at record levels for the time of year, and crude oil stocks are at an all time high. In the 12 months since the end of March last year the U.S. has added almost 600,000 barrels a day of oil to storage. This level of stock could lead to operating problems over the balance of the year.

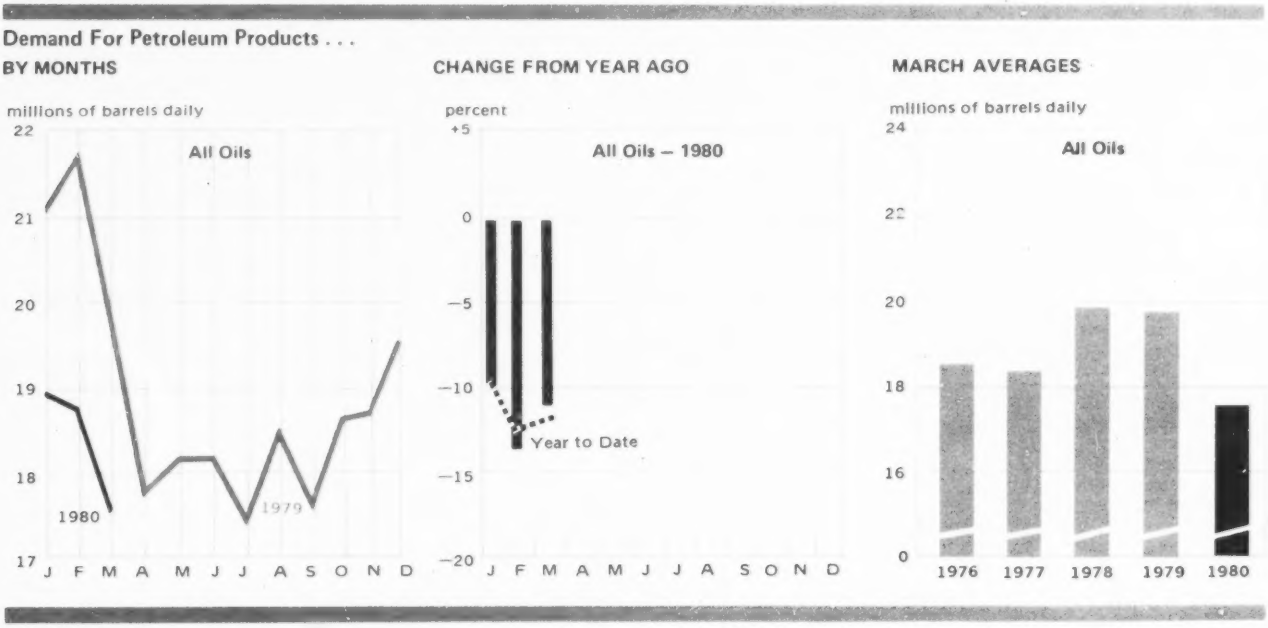


TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	FEBRUARY 1980		FEBRUARY 1979	
Lower Tier	6.99	11.0	6.25	17.9
Upper Tier	14.64	16.8	13.30	18.8
Alaska	24.45	9.1	13.51	8.1
Stripper	33.99	11.9	15.40	8.6
NPR	33.38	0.5	14.15	0.8
Newly Discovered	39.04	2.0	–	–
Heavy Oil	30.06	4.8	–	–
Tertiary	30.14	0.1	–	–
Domestic Composite	21.22	56.2	11.34	54.1
Imported	32.40	43.8	15.88	45.9
Composite	**26.11**	**100.0**	**13.42**	**100.0**
"Entitlements" Penalty	0.16	–	0.04	–
Refiner Acquisition Cost	26.27	–	13.46	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 MAR.	1980 FEB.	1980 JAN.	1979 MAR.
Motor Gasoline	84.8	80.8	74.9	45.6
Kerosine	79.0	78.6	75.9	43.5
Distillate Fuel	76.7	76.4	73.5	41.6
Residual Fuel	41.8	43.4	43.0	28.0

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
November 1979	4.70	0.35
December 1979	3.94	–0.44
January 1980	4.09	–0.56
February 1980	4.45	–0.93

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

PRICES

The 8¢ a gallon differential between distillate fuel and gasoline, and particularly the 35¢ spread between distillate and residual fuel, make cracking financially attractive. The spreads for the two types of refinery demonstrate this very markedly.

	–MARCH– 1980 Thous. Bbls. Daily	1979	Change – % –	–YEAR TO DATE AVERAGE– 1980 Thous. Bbls. Daily	1979	Change – % –
Primary Demand						
Motor Gasoline	6,630	7,221	– 8.2	6,528	7,122	– 8.3
(Unleaded)*	3,082	2,733	10.9	2,901	2,714	6.9
Jet Fuel	1,088	1,088	0.0	1,087	1,107	– 1.8
Kerosine	170	160	6.3	210	275	– 23.7
Distillate Fuel	3,254	3,627	– 10.3	3,630	4,305	– 15.7
Residual Fuel	2,570	3,238	– 20.6	2,829	3,451	– 18.0
All Other	3,453	3,861	– 10.6	3,558	4,051	– 12.2
Total Domestic Demand	17,165	19,195	– 10.6	17,833	20,312	– 12.2
Exports	459	604	– 24.0	431	494	– 12.8
Total Demand	17,624	19,799	– 11.0	18,263	20,806	– 12.2
New Supply						
Domestic	11,109	10,980	1.2	10,858	10,568	2.8
Crude Oil	8,694	8,585	1.3	8,554	8,514	0.5
Natural Gas Liquids	1,670	1,728	– 3.4	1,667	1,727	– 3.5
Other Supply	745	667	11.7	637	327	95.0
Imports	7,031	8,565	– 17.9	7,788	8,558	– 9.0
Crude Oil	5,427	6,180	– 12.2	5,987	6,333	– 5.5
Refined Products	1,604	2,385	– 32.7	1,801	2,225	– 19.0
Residual Fuel	875	1,642	– 46.7	1,030	1,439	– 28.4
All Other	729	743	– 1.9	771	786	– 1.9
Total New Supply	18,140	19,545	– 7.2	18,646	19,125	– 2.5
Crude Oil Refined	13,788	14,062	– 1.9	14,111	14,286	– 1.2
Stock Change	516	–254	–	383	–1,680	–
Stocks – End of Month in Million Barrels						
Gasoline	279	239	16.5			
Jet Fuel	39	33	18.1			
Kerosine	14	10	31.7			
Distillate Fuel	176	113	55.8			
Residual Fuel	89	72	23.1			
All Other	321	279	15.0			
Total Products	916	746	22.8			
Crude Oil	362	317	14.1			
Total – All Oils	1,278	1,063	20.2			

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

Vol. 4 — No. 5
MAY, 1980

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

April gasoline demand peaked in 1977. Each year since then has seen a decline. This year, 1980, the decline from the year-earlier level was the most severe, amounting to more than half a million barrels a day. The resulting movement of gasoline into consumption channels averaged 6.5 million barrels daily, the lowest level since April 1974. The trend to lower gasoline use is now firmly established and is expected to continue under the dual impetus of higher prices and more severe mileage standards for new cars.

The decline in distillate fuel use is even more pronounced. In April, shipments from primary storage fell 13.9 percent below the year-ago rate, and for the year-to-date thus far in 1980 the drop was even greater, amounting to 15.3 percent. Price, weather and conversions to natural gas all contributed to the lowest April level in distillate fuel demand since 1970.

Total deliveries of petroleum products into consumption channels in April amounted to 16.6 million barrels a day, 1.2 million a day lower than in April, 1979. This substantial price induced conservation effort translates directly into lower imports and a consequent saving in the balance of trade accounts of more than one billion dollars a month.

SUPPLY

The effects of price decontrol which moved into high gear at the beginning of the year are already apparent. Following increases in three consecutive months, crude oil production in April averaged 8.8 million barrels a day, the highest level since October 1978. Most of the increase stems from higher shipments from the North Slope of Alaska, but even in the more mature producing regions production appears to have stabilized.

With domestic supply of petroleum liquids 1.7 percent above the year-earlier level, imports have borne the brunt of the severe drop in demand. At 6.7 million barrels a day in April, imports of crude oil and refined products were a million barrels a day lower than in April, 1979. Even this reduced level of new crude oil supply was more than refiners needed to meet the demand for refined products. Refinery runs dropped to 13.5 million barrels a day, only 75 percent of available capacity.

STOCKS

Stocks of all oils rose in April by more than a million barrels a day, an unusually high rate of build-up for this month. Crude oil inventories increased at the rate of 400 thousand barrels a day and reached a record 374 million barrels at month-end. Stocks of the principal refined products were also at record high levels for the month of April.

PRICES

The OPEC conference in Algiers concluded with little or no progress on the stabilization of crude oil prices. The notional reference price, which is supposed to apply to Arabian 34° oil, was increased to $32 a barrel. But the producers of that oil indicated that they might continue to sell it at $28 a barrel. The maximum differential from the reference price for reasons of quality and location was set at $5 a barrel, which leads to a ceiling price for all OPEC oil of $37 a barrel.

If these guidelines are adhered to, the increase in U.S. import prices will be minimal and gasoline prices will rise by less than one cent a gallon. However, the oil ministers had scarcely arrived home before talk started of special premiums and other semantic devices to justify a breach of the ceiling price. It looks as though the price of oil will continue to be what it has been for the past year — namely, whatever the traffic will bear. Under these circumstances import prices could rise by as much as 10 cents a gallon over the second half of 1980. Should this occur the price of the decontrolled portion of domestic production would rise by a similar amount and lead to an increase in gasoline prices of 6 to 7 cents a gallon.

Domestic prices will, of course, increase steadily regardless of any changes in the OPEC price. Starting in January, the Department of Energy began shifting lower tier oil into the upper tier, and upper tier oil into the decontrolled category at the rate of about 3 percent a month as part of its program to terminate price controls by October 1981. In our Table 1, this decontrolled oil is included with Heavy Oil (D.O.E. choice, not ours) which accounts for the big increase in that category since the beginning of the year. Higher domestic and imported oil prices in March resulted in an increase in the refiner acquisition cost of crude oil of 77 cents a barrel, or 1.8 cents a gallon.

Changes in wholesale refined product prices in March were mixed. Gasoline posted a 4 cent a gallon increase, the light fuel oils showed little change and residual fuel prices actually declined for the first time since August 1978. The weakness in the fuel oil prices undoubtedly reflects the very mild weather in the winter of 1979/80.

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TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	MARCH 1980		MARCH 1980	
Lower Tier	6.98	9.9	6.26	18.1
Upper Tier	14.57	16.2	13.32	19.7
Alaska	24.32	10.4	14.10	7.2
Stripper	34.03	11.7	15.46	9.0
NPR	34.33	0.7	14.06	0.7
Newly Discovered	38.96	2.2	–	–
Heavy Oil/Decontrolled	31.52	6.5	–	–
Tertiary	31.99	0.1	–	–
Domestic Composite	22.07	57.7	11.45	54.6
Imported	33.42	42.3	16.39	45.4
Composite	**26.88**	**100.0**	**13.69**	**100.0**
"Entitlements" Penalty	0.16	–	0.09	–
Refiner Acquisition Cost	27.04	–	13.78	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

As a result of the higher gasoline prices in March the spread between gross revenue and crude oil costs increased for Type 1 (gasoline oriented) refineries. But the weak fuel oil prices resulted in a negative spread for Type 2 (fuel oil oriented) refineries amounting to $1.65 a barrel.

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 APR.	1980 MAR.	1980 FEB.	1979 APR.
Motor Gasoline	87.3	84.8	80.8	48.7
Kerosine	79.1	79.1	78.6	46.7
Distillate Fuel	77.0	76.7	76.4	44.5
Residual Fuel	39.0	41.8	43.4	30.0

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
December 1979	4.70	–0.44
January 1980	3.94	–0.56
February 1980	4.09	–0.93
March 1980	4.47	–1.65

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	APRIL 1980	APRIL 1979	Change %	3 MOS. AVERAGE 1980	3 MOS. AVERAGE 1979	Change %	YEAR TO DATE AVERAGE 1980	YEAR TO DATE AVERAGE 1979	Change %
	Thous. Bbls. Daily			Thous. Bbls. Daily			Thous. Bbls. Daily		
Primary Demand									
Motor Gasoline	6,498	7,068	– 8.1	6,522	7,184	– 9.2	6,525	7,109	– 8.2
(Unleaded)*	2,923	2,786	4.9	2,947	2,766	6.6	2,916	2,732	6.8
Jet Fuel	1,007	961	4.8	838	1,061	– 21.0	898	1,071	– 16.1
Kerosine	130	159	– 18.2	179	217	– 17.1	195	246	– 20.8
Distillate Fuel	2,587	3,006	– 13.9	3,224	3,784	– 14.8	3,373	3,980	– 15.3
Residual Fuel	2,505	2,486	0.8	2,654	3,095	– 14.2	2,768	3,213	– 13.8
All Other	3,397	3,653	– 7.0	3,421	3,845	– 11.0	3,526	3,951	– 10.8
Total Domestic Demand	16,124	17,326	– 6.9	17,066	19,185	– 11.0	17,454	19,565	– 10.8
Exports	472	495	– 4.6	442	531	– 16.7	440	494	– 10.9
Total Demand	16,596	17,829	– 6.9	17,509	19,717	– 11.2	17,895	20,064	– 10.8
New Supply									
Domestic	11,021	10,839	1.7	10,967	10,752	2.0	10,885	10,635	2.3
Crude Oil	8,761	8,533	2.7	8,657	8,540	1.4	8,606	8,519	1.0
Natural Gas Liquids	1,646	1,708	– 3.6	1,554	1,713	– 3.4	1,662	1,722	– 3.5
Other Supply	614	598	2.7	656	498	31.7	617	394	56.3
Imports	6,670	7,714	– 13.5	7,134	8,200	– 13.0	7,477	8,347	– 10.4
Crude Oil	5,308	6,145	– 13.6	5,592	6,240	– 10.4	5,813	6,348	– 8.4
Refined Products	1,362	1,666	– 18.2	1,542	2,043	– 24.5	1,664	2,085	– 20.2
Residual Fuel	721	1,134	– 36.4	850	1,363	– 37.6	941	1,365	– 31.0
All Other	641	540	18.7	692	681	1.6	722	724	– 0.3
Total New Supply	17,691	18,553	– 4.6	18,101	18,952	– 4.5	18,361	18,982	– 3.3
Crude Oil Refined	13,512	14,346	– 5.8	13,808	14,176	– 2.6	13,953	14,301	– 2.4
Stock Change	1,095	724	–	592	–765	–	466	–1,082	–
Stocks – End of Month in Million Barrels									
Gasoline	277	235	17.7						
Jet Fuel	41	36	12.1						
Kerosine	14	11	26.4						
Distillate Fuel	180	115	56.7						
Residual Fuel	86	81	6.2						
All Other	336	288	16.8						
Total Products	934	766	21.9						
Crude Oil	374	320	16.9						
Total – All Oils	1,307	1,086	20.3						

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

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The Petroleum Situation

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JUNE-JULY, 1980

NEAR-TERM PROSPECTS FOR WORLD OIL MARKETS

The most recent OPEC price increases, which followed the meeting in Algiers, were not greeted with the usual banner headlines in U.S.newspapers. Reductions in domestic crude prices, on the other hand, have been front page news. Does this mean the real oil price will begin to fall again as it did after the 1973-1974 price explosion?

Although the OPEC oil ministers voted in Algiers to increase prices, establishing a base price of $32 per barrel for a hypothetical market crude, only seven of the thirteen OPEC member nations have put through price increases so far. Some of them, notably Venezuela, have raised prices less than they originally said they would.

In recent months, not only have contract prices stopped their rapid escalation, but the spot market for oil has crumbled to the point that, even for quality grades such as the African light crudes, spot prices are close to official prices, clearly indicating a weakening market.

Two factors have led to the present weak market. A lessening of political tensions in the Middle East has reduced panic buying, and full storage tanks, coupled with lower consumer demand, have left crude buyers with nowhere to put any more oil.

Nevertheless, one should not construe the reduced tensions in the Middle East as meaning that stability has returned to the region. The Palestinian issue has, if anything, intensified as a result of recent actions by the Israelis. Notwithstanding the negatives, however, the reduced threat of hostilities in the Middle East has caused a substantial reduction in precautionary stock buildup. The panic buying of last year seems to have slowed, if for no other reason than that storage capacity is overflowing. Nearly six billion barrels of oil and oil products are in inventories throughout the Free World. In the U.S. alone, crude and product stocks total 1.3 billion barrels, well above the normal level.

Until recently, stocks were continuing to build, initially because of panic buying and then because worldwide demand was lower than anticipated. Refiners sold less product in the first half of 1980 than they had expected, with the result that product stocks began accumulating at a time of year when normally they would decline. Eventually this led to an associated reduction in crude oil being run through refineries, thus reinforcing the buildup of crude inventories. Finally, the excessive crude oil stocks were not brought into line as rapidly as in the past becuse refiners with contractual arrangements with OPEC producers were, and remain, reluctant to sever them. Given the outlook for oil demand, it seems unlikely that the stock situation will return to normal during the balance of 1980.

Free World energy demand is expected to decline in 1980 to 97.8 million barrels of oil equivalent per day from 98.5 in 1979. Underlying this reduction are the unusually warm weather this past winter in the U.S., slow-to-negative economic growth worldwide, and increased efficiency in the use of energy. Moreover, a substantial amount of price-induced conservation, such as reduced driving and building temperature controls, has also occurred. Next year, 1981, improved economic growth worldwide is forecast, and, given normal weather patterns, Free World energy demand is expected to rise by 2.6%, to 100.3 million barrels of oil equivalent per day.

FREE WORLD ENERGY BALANCES
(Million Barrels Daily – Oil Equivalent)

	1979	1980	1981
Free World Energy Demand	98.5	97.8	100.3
Non-Oil Supply	45.7	47.6	49.3
Free World Oil Demand	52.8	50.2	51.0
Non-OPEC Oil Supply	20.1	21.3	22.5
Net Communist Exports	1.3	1.2	1.0
Demand for OPEC Oil	31.4	27.7	27.5

While Free World energy demand in 1980 is expected to be less than 1% below 1979 levels, oil demand is projected to decline dramatically from 52.8 million barrels daily to 50.2, a 5% drop in only one year. This implied shift away from oil results from an increase in non-oil energy supplies, shown in the second row of the table above, from 45.7 million barrels of oil equivalent per day in 1979 to 47.6 this year. In 1981, oil demand will increase slightly in the Free World, to 51.0 million barrels daily, as growth in non-oil supplies does not quite keep pace with overall energy demand growth.

As shown in the fourth row of the table, non-OPEC oil supply is expected to expand this year and next, primarily in Mexico, the North Sea and Oman. Consequently, after accounting for net Communist exports, the demand for OPEC oil drops from 31.4 million barrels daily in 1979 to 27.7 in 1980 and 27.5 in 1981.

This means that OPEC production will have to drop by 3.7 million barrels daily in 1980 and another 0.2 in 1981. Preliminary data indicate that the demand for OPEC oil was 29.2 million barrels daily in the first half of this year, compared to our forecast of 27.7 for the full year 1980. Thus, to balance supply and demand for 1980, OPEC needs to produce only 26.3 million barrels daily for the rest of the year, 2.9 less than they did on average in the first half. Reviewing briefly the major changes in production that are now expected to occur, four countries in particular merit comment.

First, Iran's production was involuntarily reduced for obvious reasons in 1979 and has continued to decline in the first part of 1980 because of technical difficulties, sabotage, and a boycott of Iranian exports due to political and pricing considerations. Iran's output is expected to increase in 1981, despite the reduced demand for OPEC oil, as the need for increased revenues from oil exports forces some softening of the Iranians' current hard line on prices.

Nigeria and Venezuela both reduced their production in the first half of 1980, but not necessarily by choice. Their production levels are expected to decline even more during the rest of the year, because they are strongly tied to the U.S. market.

In the case of Nigeria, demand for the higher priced, higher quality crudes, such as those produced in the African nations, is down substantially as a result of lowered demands for light products. Nigeria will take the brunt of this decline in the latter half of the year because they have traditionally been more accomodating to customers than either Algeria or Libya, both of whom supply equivalent quality crudes.

OPEC OIL PRODUCTION
(Million Barrels Daily)

		1980			
	1979	First Half	Second Half	1980	1981
Demand for OPEC Oil	31.4	29.2	26.3	27.7	27.5
Iran	3.0	1.8	1.5	1.7	2.0
Nigeria	2.3	2.2	1.8	2.0	2.0
Venezuela	2.4	2.1	1.9	2.0	2.1
All Other	14.4	13.6	12.1	12.7	12.9
Saudi Arabia	9.3	9.5	9.0	9.3	8.5
Total OPEC Production	31.4	29.2	27.7	26.3	27.5

Venezuela is faced with substantially reduced demand for their heavier, less desirable crudes as utilities substitute other fuels for oil and as industrial use of energy declines due to the slowdown in economic growth worldwide. Both countries, however, are expected to increase production next year as market conditions improve for them.

The nine OPEC nations that comprise the "All Other" category also cut production in the first half of 1980, relative to average 1979 levels. In most cases, these cuts were voluntarily made in order to firm up prices. We expect further cuts for these countries in the second half of 1980, followed by increases in 1981.

This brings us to Saudi Arabia where, in the face of weak demand, production has not been cut. Rather, they have used high production levels to moderate price increases in an attempt to achieve pricing unity within OPEC. To enhance their bargaining position for adoption of the Long-Range Strategy Committee pricing formula, we believe that Saudi Arabia will continue to produce 9.5 million barrels a day through the end of September, forcing other OPEC nations to accept production cutbacks and limiting their ability to raise prices. The Saudis' highest priority continues to be pricing unity. We feel they will take the production actions most consistent with that goal. On the assumption that pricing unity will be achieved by this strategy, Saudi production will be cut to 8.5 million barrels daily in the fourth quarter and beyond.

Turning now to our associated price forecast, for the remainder of 1980 we expect only Saudi Arabia and Abu Dhabi to raise prices. We assume a price rise by the Saudis, as part of their long-term strategy, to the $32 per barrel marker crude price in two steps of two dollars each before the year-end OPEC meeting, with Abu Dhabi following the second price increase. We then expect the OPEC Long-Term Strategy Committee formula to be accepted at the December meeting. Adoption of this formula implies that the OPEC nations will adhere to the concept of realistic quality and freight differentials from the marker crude prices.

The formula links increases in the marker crude price to an index of OECD inflation, OECD economic growth, currency adjustments for changes in the dollar exchange rate and a market factor adjustment. The elements of this formula for 1981 price changes are presented below.

OPEC LONG-RANGE PRICING FORMULA

	1981/1980 Percent Change
OECD Inflation	10.0
OECD Economic Growth	1.5
U.S. Dollar Exchange Rate Adjustment	1.0
Market Factor Adjustment	−1.0
Growth in OPEC Market Price	11.5

For 1981 over 1980, Chase's Economics Department is now projecting average OECD inflation at 10% and OECD real economic growth of 1.5%. We project offsetting exchange rate and market adjustments of 1% each, for an increase of 11.5% in the marker crude price.

Acceptance of this formula is likely to be marginally advantageous for the West, compared to other alternatives considered by OPEC. In normal circumstance, it provides price stability, although the rule institutionalizes real OPEC price increases tied directly to OECD growth rates. This process will serve to lower economic growth in OECD areas and is designed to prevent declines in real OPEC prices when the world oil market is soft.

Summing up, over the next eighteen months we look for moderation in the rates of increases in imported oil prices, but their slower growth will be more than offset

by faster growth in domestic crude oil prices associated with the government's program to phase out price controls by October,1981. These events should lead to substantial increases in pump prices for unleaded gasoline from the first half 1980 average of $1.24 a gallon. Second half 1980 prices are expected to average $1.35 a gallon, and by the second half of 1981 the price of unleaded gasoline will have reached $1.61 a gallon.

Susan M. Haltmaier

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

The decline in petroleum product demand, which began a year ago, continues with domestic demand in June almost 5 percent under the 1979 level. Contributing to lower demand in recent months has been a reduction of inventories at the user level (as distinct from producers-refiners and terminal operators). Since little data is published on these "secondary" stocks, the estimates are judgmental. We believe, for example, that stocks of gasoline held by individuals in their automobile tanks and by farmers and other commercial operators have fallen this year by as much as 20 million barrels relative to a year earlier. Stocks of home heating oil are also believed to be lower at the user level. The impact of this reduction in "secondary" stocks has been to lower apparent demand at the primary level by about 150 thousand barrels a day so far this year. This trend, however, has probably run its course, and apparent demand for the balance of the year will more closely reflect actual consumption.

SUPPLY

Domestic crude production continues to hold up well, with June production very close to April and May levels, both in Alaska and the lower 48 states. Production of natural gas liquids was down slightly, probably as a function of lower demand rather than a basic decline in availability. Reflecting weak overall demand and high stocks, imports of both crude and products in June were more than 20 percent below the year-earlier levels, a situation that is expected to continue for some time.

Refiners processed 13.6 million barrels a day of crude oil in June, one million barrels a day less than in June 1979. Even this reduction, however, was not sufficient to prevent a further build-up of refined product stocks.

STOCKS

Total stocks in June declined by 68 thousand barrels a day, a modest increase in refined product stocks being more than offset by a drop in the amount of crude oil in storage. By mid-year, the increase in stocks over year-earlier levels amounted to 164 million barrels, 46 million barrels more crude oil and 118 million more refined products. Gasoline and distillate accounted for three quarters of the increase in product stocks a fact that is likely to influence prices in the months ahead.

PRICES

The expected steady increase in refiner acquisition costs of crude oil in 1980 is being realized, but for the balance of the year it will be caused by the decontrol of domestic crude oil prices rather than by higher costs for imported oil. With the decline (or perhaps collapse) in spot premiums for imported crude it is probable that the average imported crude price will show little increase for the balance of the year.

The rise in wholesale product prices in May was not sufficient to offset crude cost increases, leading to declines in the gross margins for both refinery types. The negative spread for type 2 refineries has reached a level that reflects the perilous position of many small refineries. The small refiner bias available to them under the Department of Energy entitlements program is not sufficient to offset their negative cash flow. This factor reinforces the concern expressed in the April *Petroleum Situation*.

U.S. Wholesale Prices . . .
BY MONTHS
cents per gallon

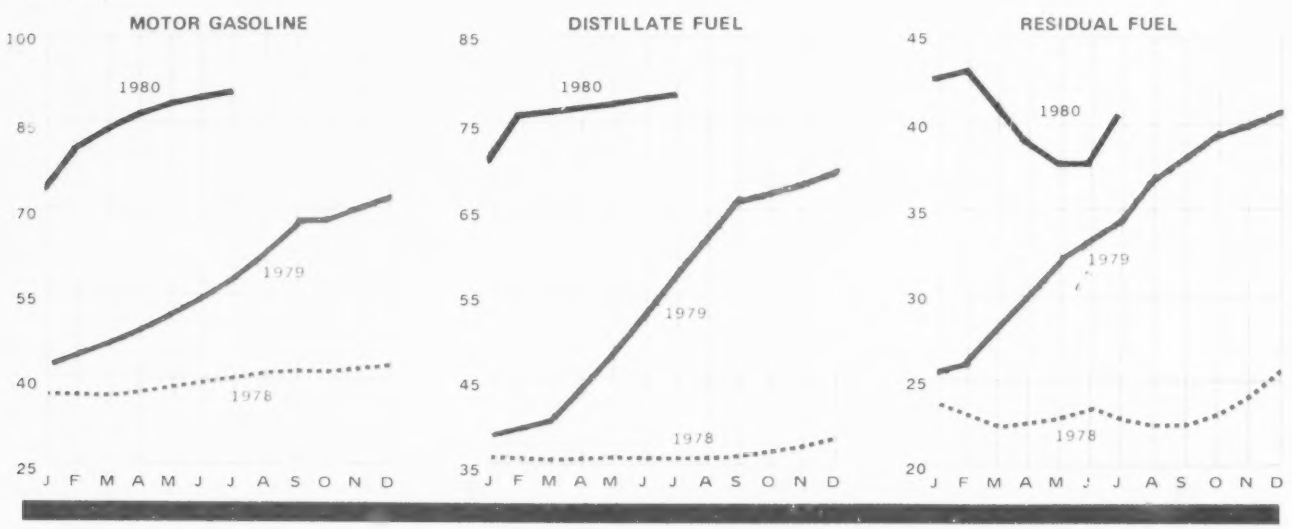

TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	MAY 1980		MAY 1979	
Lower Tier	6.95	9.7	6.35	16.8
Upper Tier	14.75	15.5	13.55	18.9
Alaska	27.39	11.6	15.53	8.5
Stripper	34.74	11.7	17.83	9.4
NPR	33.77	0.9	15.92	0.8
Newly Discovered	38.92	2.8	–	–
Heavy Oil/Decontrolled	32.88	8.2	–	–
Tertiary	30.79	0.2	–	–
Domestic Composite	23.63	60.6	12.41	54.4
Imported	34.33	39.4	18.96	45.6
Composite	**27.85**	**100.0**	**15.40**	**100.0**
"Entitlements" Penalty	0.19	–	0.08	–
Refiner Acquisition Cost	28.04	–	15.48	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 JUNE	1980 MAY	1980 APRIL	1979 JUNE
Motor Gasoline	90.7	89.1	87.3	53.9
Kerosine	80.6	79.6	79.1	54.9
Distillate Fuel	78.3	77.6	77.0	52.9
Residual Fuel	37.9	37.9	39.0	33.1

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
February 1980	4.45	–0.93
March 1980	4.47	–1.65
April 1980	4.66	–2.18
May 1980	4.20	–3.05

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	JUNE 1980 Thous. Bbls. Daily	JUNE 1979 Thous. Bbls. Daily	JUNE Change – % –	3 MOS. AVERAGE 1980 Thous. Bbls. Daily	3 MOS. AVERAGE 1979 Thous. Bbls. Daily	3 MOS. AVERAGE Change – % –	YEAR TO DATE AVERAGE 1980 Thous. Bbls. Daily	YEAR TO DATE AVERAGE 1979 Thous. Bbls. Daily	YEAR TO DATE AVERAGE Change – % –
Primary Demand									
Motor Gasoline	6,767	7,187	– 5.8	6,700	7,153	– 6.3	6,609	7,138	– 7.4
(Unleaded)*	3,061	2,824	8.4	2,981	2,799	6.5	2,941	2,771	6.1
Jet Fuel	1,071	1,073	– 0.2	1,033	1,014	1.9	1,060	1,060	0.0
Kerosine	125	144	– 13.2	134	148	– 9.1	174	211	– 17.8
Distillate Fuel	2,612	2,707	– 3.5	2,584	2,902	– 11.0	3,069	3,599	– 14.7
Residual Fuel	2,417	2,552	– 5.3	2,441	2,519	– 3.1	2,637	2,984	– 11.6
All Other	3,829	4,028	– 4.9	3,615	3,852	– 6.2	3,761	3,951	– 4.8
Total Domestic Demand	16,821	17,691	– 4.9	16,506	17,587	– 6.1	17,310	18,944	– 8.6
Exports	505	455	11.0	478	466	2.5	494	480	3.0
Total Demand	17,326	18,146	– 4.5	16,984	18,053	– 5.9	17,804	19,424	– 8.3
New Supply									
Domestic	10,805	10,894	– 0.8	10,842	10,673	1.6	10,944	10,579	3.4
Crude Oil	8,734	8,409	3.9	8,748	8,509	2.8	8,714	8,512	2.4
Natural Gas Liquids	1,586	1,641	– 3.4	1,608	1,665	– 3.4	1,632	1,696	– 3.8
Other Supply	485	844	– 42.5	486	499	– 2.6	599	372	61.0
Imports	6,453	8,226	– 21.6	6,546	8,011	– 18.3	7,138	8,326	– 14.3
Crude Oil	5,122	6,554	– 21.8	5,184	6,286	– 17.5	5,543	6,351	– 12.7
Refined Products	1,331	1,672	– 20.4	1,362	1,725	– 21.0	1,595	1,975	– 19.3
Residual Fuel	787	880	– 10.6	786	1,022	– 23.1	912	1,231	– 25.9
All Other	544	792	– 31.3	576	703	– 18.1	683	744	– 8.3
Total New Supply	17,258	19,120	– 9.7	17,387	18,684	– 6.9	18,082	18,905	– 4.4
Crude Oil Refined	13,645	14,655	– 6.9	13,492	14,423	– 6.5	13,748	14,355	– 4.2
Stock Change	–68	974	–	403	631	–	278	–518	–
Stocks – End of Month in Million Barrels									
Gasoline	264	229	14.9						
Jet Fuel	42	36	16.4						
Kerosine	14	13	10.3						
Distillate Fuel	193	141	36.7						
Residual Fuel	85	81	5.4						
All Other	316	295	6.8						
Total Products	914	796	14.8						
Crude Oil	372	326	14.1						
Total – All Oils	1,286	1,122	14.6						

Totals may not add due to rounding
*Included in motor gasoline

Sources *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy

The Petroleum Situation

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REFINERS IN A CHANGING WORLD

The past decade has seen substantial changes in the petroleum industry that are of particular concern to refiners, and there is little doubt that these changing trends will continue well into the decade that has just started.

Two of the areas of greatest importance to the refiner are his supply of raw material, crude oil, and the market for his finished products. These two areas tend to be separate and subject to different influences. Moreover, because petroleum is truly a worldwide industry, we cannot afford to take a parochial view of events outside the United States because they almost surely will influence the outlook for refiners in this country.

Today, most of the interest in petroleum centers on the recent weakening of prices under the influence of the mini-glut. But, while this mini-glut is undoubtedly of concern to refiners in evaluating day-to-day profitability, it is likely to be short lived and of little help in planning strategy for the next five to ten years.

The relationship between supply, demand, and price is really quite simple. At a given price, consumers demand so much of a commodity and producers supply an equal amount. If producers attempt to supply more than consumers wish to purchase, the price falls and more consumers are enticed into the market or existing consumers are persuaded to use more, or producers are encouraged to reduce supply. If, on the other hand, consumers demand more than producers are supplying, the price will rise, signaling producers to supply more or consumers to demand less.

Thus, price changes send appropriate signals to both producers and consumers, alerting them to modify their behavior so that the system is always in balance. It is based on the principle that suppliers try to maximize profits and consumers try to minimize costs.

Left to itself, the system would have begun sending appropriate signals to producers and consumers many years ago, warning that petroleum, oil and natural gas, was a declining resource. Prices would have started moving up ten years ago and we might possibly have avoided the excesses of 1979.

But the system was not left to itself. Government began intervening twenty-six years ago when it decided that producers of natural gas should be subject to federal price controls, and it has been intervening in a variety of ways ever since. In fact, the layers of U.S. government intervention multiplied to the point that, by the middle seventies, government was dictating the allocation and price of crude oil and refined products right down to the pump. Competition was removed from the petroleum industry, and in its place government-sanctioned margins were substituted. When, from time to time, competition forced prices below the government-sanctioned level, the difference could be banked and then drawn upon at a later date when the market would tolerate higher prices. Such a system is not very conducive to risk-taking and private enterprise.

What can we expect from government in the future? To some extent, the answer probably depends on what type of government we get during the next four to eight years. Present legislation calls for the dismantling of price and allocation controls at the end of September, 1981—a year away. Nobody, however, should count on that happening until it has actually happened. If free enterprise should be restored to the U.S. petroleum industry in September, 1981, its individual members will face a variety of problems on both the supply side and the demand side.

Let's look at the supply side first. Despite all the efforts that will be made to advance the supply of energy from unconventional sources, OPEC oil will remain the marginal source of energy in the United States throughout the nineteen eighties. OPEC future production philosophy is, therefore, an important consideration in future planning.

A major problem facing developing nations is the rate at which they can convert financial assets into useful economic projects. This is frequently limited by lack of a trained labor force and by an inadequate infrastructure. By forcing the pace, much money may be wasted and a group of white elephants created.

It can be argued that political imperatives force the attempt at rapid internal development, and therefore at maximizing current production, but this does not apply to those countries that have surplus funds to invest externally. Here the trade-off is between money in the bank and oil in the ground. Unless the present value of future production is below the current price, it will be more profitable to delay production.

It must be stressed that future OPEC production policies are based on a perception of the future, and this may well vary from one country to another. We do not, therefore, look for monolithic action by OPEC in this regard. There are still many things that divide OPEC — politics, religion, geography, and ethnic differences, to name a few.

Our current view is that more conservative production policies in OPEC countries will lead to a 1990 price around $100 a barrel (about $45 in constant 1980 $), compared to about $35 a barrel in 1980. thus, the real price of OPEC oil, exclusive of inflation, is expected to grow at just over 3 percent a year during the nineteen eighties.

The OPEC price is expected to set the pattern for oil produced in other areas of the world, including the United States. U.S. refiners, therefore, will pay the world price for crude oil whether they obtain it locally or from overseas. The advantage that U.S. refiners have enjoyed during the period of price controls is already disappearing and will be gone completely by September, 1981. Whether refiners will be protected from foreign competition by a tariff on foreign imports, over and above the statutory duty, remains to be seen.

A potential problem facing refiners all over the world arises out of the diminished role of the international majors as suppliers of crude oil, coupled with changes in the availability of certain types of crude oil.

The majors no longer have any crude oil to sell to third parties. In fact, they are having difficulty keeping their own refining systems supplied. Refiners that used to rely on the majors for their crude oil supplies are now being forced to deal directly with government companies in producing countries. These companies generally have a smaller variety of crudes to sell than used to be available from the majors. It is thus more difficult today for the smaller refiner to match available crudes to the needs of his refinery. As a result, there has been a considerable reduction in the flexibility of the crude oil supply system.

To offset this, refiners around the world are investing heavily in downstream equipment that will give them greater flexibility in the types of crude that can be processed and in the range of products that can be produced. But this upgrading of refineries does not come cheaply. The recently announced decision of Chevron to upgrade their Pascagoula refinery will cost a billion dollars. That is several times the original cost of the refinery.

Despite the high cost, refiners who plan to stay in business should make plans to modify their refineries to accommodate changes in the crude supply stream and also changes in the slate of products that the market will seek over the next two decades.

Given the anticipated increases in the real price of oil, we look for very little growth in demand worldwide. But that does not mean that the relative demand for each of the main products will remain static. On a global basis the relative demand for light products (gasoline, jet fuel, diesel oil) is expected to increase at the expense of fuel oils. Greater use of coal and natural gas, where these are available, will limit the demand for fuel oil, and this is likely to be a more important factor than reductions in the use of gasoline in the United States caused by the move to smaller and more fuel-efficient cars. Other countries that have used fuel efficient cars for years have less scope to reduce the consumption of gasoline.

What this means is that price differentials between light and heavy products are likely to widen. Refiners who remain dependent on a high yield of heavy products can expect to face greater price competition in the years ahead.

What of the crude supply stream? In the past, when there was freedom of choice, refiners bought the cream of the crop. Heavy crudes, high in sulphur, were difficult to sell in any market, but particularly so in the United States, where most refineries had been built to run on light, sweet domestic crudes.

Now the cream of the crop has reached a plateau and as it declines in volume it will be replaced by heavier, less desirable crudes. The process has already begun. Saudi Arabia has placed limits on the production of light 34 gravity oil, thus forcing greater acceptance of the heavier grades. Mexico requires crude oil purchasers to take a certain proportion of heavy Maya crude oil along with the lighter Isthmus crudes. Refiners must be prepared to handle heavier grades of crude in the future than they have in the past, and they must be prepared to handle a greater variety of crudes, since their first choice may not always be available.

With European refineries operating at 60 to 70 percent of their distillation capacity and U.S. refineries not doing much better, there is obviously little immediate need for new grass roots refineries in the western world.

In fact, the need may never arise given the likelihood that any increase in petroleum product demand will be met from the new OPEC refineries that will be coming on stream during the eighties. These will be mainly export-oriented refineries, and since crude oil supply is expected to remain tight, OPEC refineries will have plenty of leverage to help them dispose of their refined products. These OPEC refineries will add sufficient new capacity by 1990 to fully cover the likely expansion in demand.

U.S. refiners, therefore, should not look to expanding their capacity, but should consider modifying it to meet changing circumstances. The key to the future is flexibility: Plants that are large enough to provide economies of scale, and plants that have enough downstream capability to handle changes in crude availability and changes in the mix of products demanded.

To repeat, flexibility does not come cheaply. For the smaller refiners, the solution may lie in mergers, three or four smaller refiners getting together and choosing one of their plants for adaptation. This is a more viable solution than building a new grass roots refinery with all the attendant planning permits and environmental impact statements.

It is a solution that may not appeal to the fiercely independent spirit of some of our refiners. But on a more rational, less emotional level, it is surely better to own part of a profitable operation than to own the whole of an enterprise that is slipping further and further into the red each year.

John D. Emerson

UNITED STATES PETROLEUM HIGHLIGHTS

DEMAND

Deliveries of petroleum products into consumption channels in July averaged 16.5 million barrels a day, 6 percent below the level in July, 1979. In fact, it is necessary to go back about ten years to encounter demand levels as low as those currently in effect.

Each of the major products continues to experience dramatic reductions in demand, with the exception of unleaded gasoline, which now accounts for over 47 percent of total gasoline use. Price-induced conservation and conversion to other energy sources are the main reasons for lower demand, reinforced in recent months by the economic recession.

SUPPLY

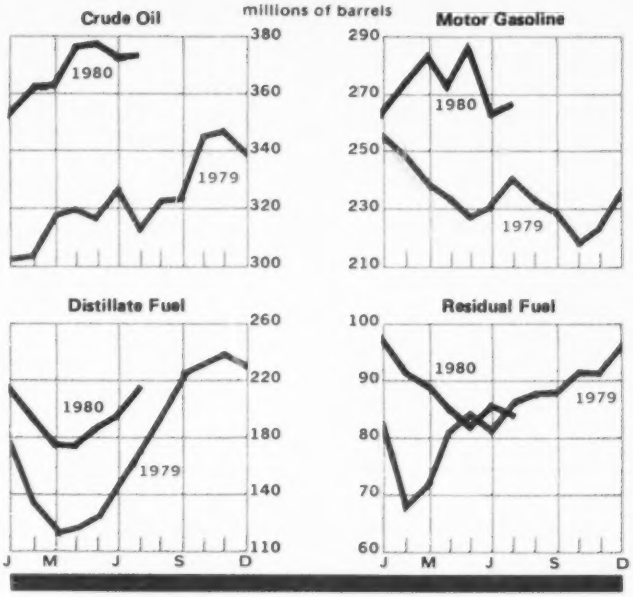
Domestic crude oil production in July ran 4.2 percent ahead of year-ago levels, though in evaluating that comparison it should be remembered that July, 1979 saw the lowest level of domestic production in that year. Most of the increase in recent months stems from higher shipments from the North Slope of Alaska, but in July even lower 48 production exceeded the year-earlier level.

The continued strength in domestic crude oil production, coupled with weak demand, has forced a major reduction in imports. Imports of crude oil and refined products in July were 25 percent below the year-earlier level, and were, in fact, at the lowest level since mid-1975.

STOCKS

Crude oil stocks rose modestly in July and reached a level of 374 million barrels at month end. Most of the half a million barrel a day stock build-up came in the form of products. Distillate fuel stocks, which consist mainly of diesel and home heating oil, increased at a rate of almost 700 thousand barrels a day and at the end of the month were 43 million barrels higher than in July, 1979.

Petroleum Inventories . . .
BY MONTHS
millions of barrels



At current rates of delivery, refined product stocks in July represented 58 days supply, compared with 50 days supply a year earlier.

PRICE

Several components of the domestic price schedule declined in June, but the amount of crude oil freed from price-controlled categories was sufficient to raise the average domestic price by 2 cents a gallon. The collapse of the spot market led to little change in the price of imported oil. The resulting average refiner acquisition cost of both domestic and foreign crude oil was held to an increase of slightly more than 2 cents a gallon in June.

U.S. Wholesale Prices . . .
BY MONTHS
cents per gallon

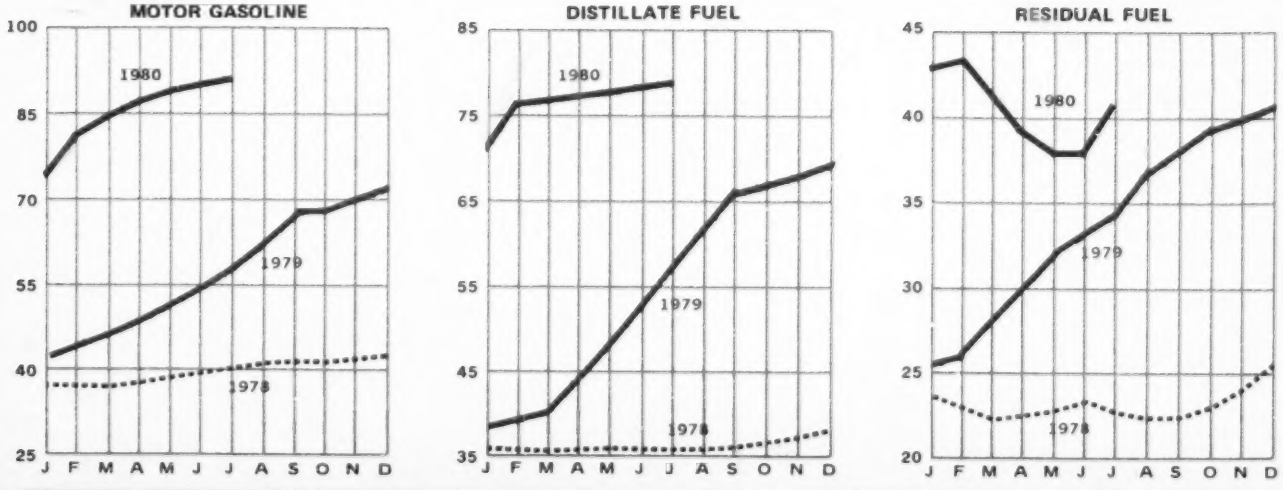


TABLE 1

REFINER ACQUISITION COST OF CRUDE OIL

CLASS	Price $/BBL	Percent Share of Total Crude	Price $/BBL	Percent Share of Total Crude
	JUNE 1980		JUNE 1979	
Lower Tier	7.20	9.1	6.47	14.8
Upper Tier	15.03	13.0	13.66	19.7
Alaska	26.85	9.3	16.48	6.8
Stripper	34.98	12.2	20.29	9.7
NPR	33.46	1.2	16.06	0.7
Newly Discovered	37.69	2.8	–	–
Heavy Oil/Decontrolled	33.51	9.0	–	–
Tertiary	27.49	0.3	–	–
Domestic Composite	24.48	56.9	13.24	51.7
Imported	34.48	43.1	21.00	48.3
Composite	**28.80**	**100.0**	**16.99**	**100.0**
"Entitlements" Penalty	0.16	–	0.08	–
Refiner Acquisition Cost	28.96	–	17.07	–

Sources: U.S. Department of Energy
Chase Manhattan Bank

This was more than the increase in the wholesale value of refined products, however. As a consequence, the refiners' spread between gross revenue and crude oil cost declined in June. For gasoline-oriented (type 1) refiners the spread fell below $4 barrel for the first time in 1980. Fuel oil-oriented (type 2) refiners went more deeply into the red with a negative spread of $3.73 a barrel.

TABLE 2

AVERAGE WHOLESALE PRICES FOR PETROLEUM PRODUCTS

(Cents/Gallon)

	1980 JULY	1980 JUNE	1980 MAY	1979 JULY
Motor Gasoline	91.3	90.7	89.1	57.8
Kerosine	80.8	80.6	79.6	59.4
Distillate Fuel	78.6	78.3	77.6	57.1
Residual Fuel	40.9	37.9	37.9	34.1

Source: Independent Petroleum Association of America

TABLE 3

SPREAD BETWEEN GROSS REVENUE AND CRUDE OIL COST

($/Barrel)

	Type 1 Refinery	Type 2 Refinery
1975	1.21	0.10
1976	2.01	0.31
1977	2.49	0.94
1978	2.39	0.10
1979	4.19	0.84
March 1980	4.47	–1.65
April 1980	4.66	–2.18
May 1980	4.20	–3.05
June 1980	3.72	–3.73

Note: Spread figures are calculated as follows:

	Motor Gasoline	Kerosine	Distillate Fuel	Residual Fuel
Type 1	50%	8%	25%	17%
Type 2	21%	8%	19%	52%

	JULY 1980	JULY 1979	Change – % –	3 MOS. AVERAGE 1980	3 MOS. AVERAGE 1979	Change – % –	YEAR TO DATE AVERAGE 1980	YEAR TO DATE AVERAGE 1979	Change – % –
	Thous. Bbls. Daily			Thous. Bbls. Daily			Thous. Bbls. Daily		
PRIMARY DEMAND									
Motor Gasoline	6,591	6,850	- 3.8	6,697	7,079	- 5.4	6,603	7,096	- 7.0
(Unleaded)*	3,115	2,789	11.7	3,052	2,776	10.0	2,985	2,738	9.0
Jet Fuel	1,014	1,105	- 8.2	1,057	1,062	- 0.4	1,080	1,067	1.2
Kerosine	111	130	- 14.6	128	138	- 7.4	165	199	- 17.0
Distillate Fuel	2,166	2,552	- 15.1	2,414	2,750	- 12.2	2,934	3,446	- 14.9
Residual Fuel	2,395	2,451	- 2.3	2,402	2,507	- 4.2	2,614	2,906	- 10.1
All Other	2,734	3,983	- 6.3	3,610	3,961	- 8.9	3,833	3,956	- 3.1
Total Domestic Demand	16,011	17,071	- 6.2	16,308	17,496	- 6.8	17,228	18,670	- 7.7
Exports	510	502	1.6	491	469	4.6	512	483	6.0
Total Demand	16,521	17,573	- 6.0	16,798	17,965	- 6.5	17,740	19,153	- 7.4
New Supply									
Domestic	10,837	10,729	1.0	10,772	10,670	1.0	10,812	10,601	2.0
Crude Oil	8,710	8,355	4.2	8,721	8,450	3.2	8,698	8,489	2.5
Natural Gas Liquids	1,588	1,643	- 3.3	1,589	1,644	- 3.3	1,611	1,688	- 4.6
Other Supply	539	731	- 26.3	462	576	- 19.9	503	424	18.5
Imports	6,188	8,281	- 25.3	6,333	8,165	- 22.4	7,082	8,319	- 14.9
Crude Oil	4,829	6,349	- 23.9	5,007	6,354	- 21.2	5,509	6,350	- 13.3
Refined Products	1,359	1,932	- 29.7	1,326	1,812	- 26.8	1,574	1,969	- 20.1
Residual Fuel	895	1,065	- 16.0	842	1,000	- 15.8	930	1,207	- 22.9
All Other	464	867	- 46.5	484	812	- 40.3	644	762	- 15.4
Total New Supply	17,025	19,010	- 10.4	17,104	18,835	- 9.2	17,894	18,921	- 5.4
Crude Oil Refined	13,199	14,977	- 11.9	13,423	14,635	- 8.3	13,644	14,446	- 5.6
Stock Change	504	1,437	–	306	870	–	154	–233	–
Stocks – End of Month in Million Barrels									
Gasoline	266	242	10.0						
Jet Fuel	42	34	21.8						
Kerosine	15	14	3.1						
Distillate Fuel	214	171	25.1						
Residual Fuel	84	87	- 2.8						
All Other	308	305	0.8						
Total Products	928	853	8.8						
Crude Oil	374	313	19.4						
Total – All Oils	1,302	1,166	11.7						

Totals may not add due to rounding
*Included in motor gasoline

Sources: *American Petroleum Institute*
Chase Manhattan Bank
Department of Energy